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Public Excursion Number One

ON Wednesday the general public in London had the opportunity of travelling again behind the ex-G.N.R. Stirling 8-ft. single No. 1, which, as recorded in our issue of July 8, was brought out of its retirement at York Museum for a demonstration run with a "period" train of vintage *circa* 1888 on June 30. The trip on Wednesday was a half-day excursion to Cambridge from King's Cross, and, reaping the reward of the publicity it had earned on its earlier airing, the Stirling single had a full load which included many railway enthusiasts of note. A large proportion of the passengers clearly consisted of those sufficiently old to be sampling afresh a railway experience they must have thought gone for ever—that of travelling in six-wheel coaches behind a single-driver locomotive. Yet many younger members of the party had come to find out what all this talk about the good old railway days is about, and perhaps to "debunk" the time-coloured yarns of their parents. But so adequately did engine and coaches rise to the occasion that once the ear had accustomed itself to the unfamiliar rhythm, and the thin sound of distant cheering at stations and bridges, it was hard to think of the journey as an historic event. On the return journey, indeed, No. 1 showed herself still abreast of the times by touching 65 m.p.h. near Hatfield. We almost felt that we ourselves contributed something

to enjoyment of the outing, for a quick survey of the coaches showed copies of our associated publications, *The Railway Magazine* and "Gradients of the British Main-line Railways" in the majority of compartments.

* * * *

What Might Have Been

When the branch line between Quainton Road and Brill was closed in 1935, the Buckinghamshire village of Brill lost the distinction of being served by a railway that was built as a private line without Parliamentary powers, and ended its life as part of the London Transport system although nearly 50 miles from the capital. Let us hope that Brill as a railway curiosity will not be effaced from recollection as completely as Brill the watering place. A recent article in *The Times* recalled that one Charles Ricketts hoped to establish a spa there in the reign of William IV, and actually transformed a dilapidated country house and estate into a pump-room surrounded by "all the *agrémens* of a pleasure ground." His venture failed, but had history taken a different turn, spa and railway might have thrived together. Whole trains of Pullman cars could even now be conveying rich valetudiniarians right through from Baker Street to Brill. At the station, a London Transport coach would smooth out the fearsome ascent of Brill hill, and perhaps (being far from the co-ordinating eye of 55 Broadway) indulge in unseemly racing with a G.W.R. conveyance bringing passengers from Brill & Ludgershall station, deposited there by a slip coach off The Spas Express (Paddington, Brill, and Leamington only).

* * * *

The Week's Traffics

Passenger train traffics of the four group companies for the past week showed a net increase of £27,000 in comparison with the corresponding week in 1937, but merchandise receipts were down £167,000 and coal receipts were £48,000 lower, making a net decrease of £188,000 against a decrease of £238,000 for the previous week. Aggregate earnings of the four companies to date are £100,913,000, a decrease of £3,259,000, or 3.13 per cent., made up of a net decrease of £234,000 from passengers, a decrease of £2,345,000 from merchandise, and a decrease of £680,000 from coal. On the passenger side the L.M.S.R. has an increase of £6,000.

	33rd Week				Year to date	
	Pass., &c.	Goods, &c.	Coal, &c.	Total	Inc. or Dec.	%
L.M.S.R. ..	+ 22,000	- 83,000	- 5,000	- 66,000	-1,361,000	-3.24
L.N.E.R. ..	+ 5,000	- 51,000	- 33,000	- 79,000	-1,118,000	-3.66
G.W.R. ..	- 2,000	- 28,000	- 10,000	- 40,000	-619,000	-3.52
S.R. ..	+ 2,000	- 5,000	-	- 3,000	-161,000	-1.14

Among Irish railways the Belfast & County Down shows an improvement of £166 for the week, and the Great Southern one of £114, but the Great Northern is £100 down.

* * * *

Port of London Authority

The report of the Port of London Authority for the year ended March 31, 1938, again shows an improvement in gross revenue and an increase in the volume of tonnage using the port. Some 62,745,758 net registered tons of shipping arrived at and departed from the port during the year, compared with 52,576,755 tons ten years ago. Total imports and exports—foreign, coastwise, and transshipment—amounted to 44,643,644, a record figure in the history of the port. Coastwise imports (16,763,016 tons) increased by 6 per cent., and coastwise exports (2,526,469) by 7.5 per cent. There was an increase of 1.7 per cent. in the net registered tonnage (44,938,928) of vessels paying river duties, after excluding the classes exempted since

October 8, 1937. Shipping entering the dry docks of the authority increased from 2,679,595 to 3,167,553 tons, and there was an increase of 3.5 per cent. in the tonnage (26,300,124) of the vessels using the wet docks. Import goods landed for storage or immediate delivery totalled 2,442,994 tons, or 5.9 per cent. higher, and exports also increased by 42,733 tons, to 771,546 tons. Total revenue advanced from £5,786,938 to £6,132,425, and expenditure from £4,253,212, to £4,439,000, leaving a balance of revenue of £1,693,425, against £1,585,925. Interest and sinking fund charges, less interest receivable, amounted to £1,757,161 (against £1,534,340), leaving a deficit of £63,736, compared with the deficit of £614 in 1937, and the surplus of £6,166 in the year before.

* * *

Overseas Railway Traffics

A continuance of increases in traffics has been shown during the past fortnight by the Buenos Ayres Great Southern with an improvement of £14,206, and by the Entre Rios with a net increase of £1,849, which has brought its advance for the eight weeks of the current financial year to £8,604. The Argentine North Eastern has, however, had a small setback during the two weeks. Leopoldina Railway traffics for the 34th week of the current year show a decrease of £4,057 and also a fall in currency. To date its decrease is £122,466 and, 3,185,000 in milreis. San Paulo traffics to date are £45,910 down in sterling, but are up in currency.

	No. of Weekly Week Traffics	Inc. or Decrease	Aggregate Traffic	Inc. or Decrease
Buenos Ayres & Pacific	8th 72,767	- 7,940	538,153	- 70,346
Buenos Ayres Great Southern	8th 124,442	+ 6,700	914,951	+ 14,889
Buenos Ayres Western	8th 35,238	- 18,052	277,356	- 69,605
Central Argentine	8th 102,993	- 29,122	761,440	- 304,005
Canadian Pacific	33rd 491,600	- 24,200	15,478,200	- 1,320,400
Bombay, Baroda & Central India	19th 201,000	+ 12,525	3,207,450	- 68,475

The Antofagasta (Chili) & Bolivia Railway earnings for the 34 weeks of the current year amount to £514,610, a decrease of £34,610 in comparison with 1936.

* * *

Netherland Indian Railways

The Report on Economic and Commercial Conditions in Netherland India, published by the department of Overseas Trade, gives the provisional statistics of working of the Netherland Indian State Railways for 1937. Gross receipts for the Java, South Sumatra, and West Coast Sumatra Railways, and the Atjeh Tramways, amounted to 34,021,123 florins, an increase of fl. 6,060,000 over the 1936 figures. Budget estimates for 1938 forecast a total improvement in gross earnings of fl. 1,300,000 over 1937, and a ratio of net expenditure to total receipts of 88.47 per cent. Provisional statistics for the Netherlands Indian Railway (Mid-Java) are also given, as follow: total receipts in 1937, fl. 7,745,000, against fl. 6,336,118 in 1936. Expenditure, fl. 4,215,000 against fl. 4,062,418. Passenger receipts, at fl. 1,126,000, compared with fl. 951,300; and freight, fl. 6,030,000, with fl. 4,798,207. As regards the 11 private railway and steam tram concerns (excluding Batavia and Surabaya electric tramways) comparative gross earnings showed an improvement of 23 per cent. in the first nine months of 1937. The Deli Railway Company, working on the East Coast of Sumatra, reports an increase in gross earnings, from 4,671,000 florins in 1936, to fl. 5,297,000 in 1937, in spite of freights being reduced, the improvement being attributed to increase in tonnage of latex, rubber, palm oil, machinery, and building materials. Total freight carried in 1937 amounted to 889,000 tons, against 703,000 tons in 1936. The system has been increased by a connection between Melano and Rantau Prapat, about 13 km.

Railway Libraries

The Canadian Pacific Railway Company has shown a worthy initiative in the matter of facilitating spare-time self-instruction for its staff, by having arranged to issue a "Foundation Library" comprising works of reference and instruction, in such a form as will be readily accessible at small cost and on easy terms of payment to all the employees in the world-wide organisation of the company. The first volumes of the series, reviewed on page 361, are naturally dedicated to a description of the C.P.R. itself, and to questions of railway and steamship operation. Others treat of Canadian history, and the remainder of the set of ten are mainly educational. This initiative on the part of the great Canadian company is very laudable, as it places within the reach of the humblest of the company's employees a means for self-instruction, which not only benefits the individual, but must indirectly be of advantage for the service. We had occasion recently to refer in these notes to a lending library at an isolated station on one of our English railways, and, although the C.P.R. Foundation Library aims at self-instruction rather than amusement, the aim is identical in its recognition of the intellectual needs of the railwayman in isolated posts.

* * *

Carron Company and its Railways

In connection with the Empire Exhibition at Glasgow, the famous ironfounding firm of Carron Company has produced an interesting brochure outlining the history and activities of the undertaking. The business was established as long ago as 1759, and has the distinction of being incorporated by Royal Charter granted on July 15, 1773; incidentally this document mentions "the name and title of Carron Company" and the present directors consequently avoid using the definite article as part of the company's name. Probably the Carron shipping line is the best-known transport ancillary department of the company, but from very early years private railways have also proved a valued adjunct to the business. Indeed, the company's first line, which extended about two miles from Kinnaird colliery into the interior of Carron works, was built about 1766. The rails were of timber, covered with iron. Today, to serve the needs of the various works and to link up the collieries and coke ovens with other departments, the company owns over 40 miles of track (including sidings), 16 locomotives, and more than 400 wagons for internal use in Carron works and over 400 wagons at Bannockburn colliery.

* * *

The North Shore Line Instals Signals

The Chicago, North Shore & Milwaukee Railway, although operating a fast and frequent electric passenger service, was worked for many years without any block system, signals being employed only at interlocking points. Reliance was placed on careful observation by drivers and the standard American timetable and operating rules, which contain strict injunctions for the protection of trains by their crews when the scheduled running cannot be maintained. Of course, the traffic was also controlled by the customary train despatcher method. Good results have been obtained on the whole, but we had occasion to refer to a collision between a North Shore and an elevated line train on November 24, 1936, in an editorial note in our issue for April 4, 1936; the accident occurred on a non-signalled section which was quite straight and where the driver had an excellent view. Of recent years it has been recognised that modern signal protection was necessary, at least on some sections, and an installation of three-aspect automatic colour-light signals has now been completed over the 25 miles from Howard Street

junction, Chicago, to North Chicago, over the first 5 miles of which to a junction at Niles Center, the trains of the Chicago Rapid Transit Company also run. The North Shore trains in turn run over that company's line from Howard Street into the city. The work included 55 signals, the modification of the previous signalling at three interlocking points, and a number of level crossing signals. Trains are worked by 600 volts d.c., nearly all the way with overhead wires.

* * * *

The Menace of the Transverse Fissure

The transverse fissure trouble in American rails still continues, not only without abatement, but on a constantly increasing scale. Figures for 1936—the latest available—show the greatest number of fissure failures yet recorded in any one year in the U.S.A. No fewer than 5,706 rails failed in this way, as compared with 4,867 in 1935; and failure was forestalled by Sperry detector cars in 8,020 other cases, as compared with 7,497 detected fissures in 1935. The total of fissured rails thus found in 1936 was 13,726—an increase of 11 per cent. over the previous year, and the only meagre comfort to be derived from these figures is that so large a proportion of these defects was located by the detection appliances before the rails concerned had had a chance to cause a derailment by unexpected breakage. Nevertheless the number of rails that actually broke before detection of the fissures was greater than in any previous year with the exception of 1929, when 5,200 rails broke in this way. It is small wonder in these circumstances that practically every American railway now requires the controlled cooling of its rails; but many years will elapse before the shatter-cracking of rails already laid in American tracks will have finished its insidious work, and confidence is fully restored.

* * * *

Concrete Slabs to Carry Track on Soft Formation

The Missouri Pacific Railroad has recently succeeded in combating lengths of soft clay formation by laying reinforced-concrete slabs continuously under the track. By this means maintenance costs have been reduced, the track load has been spread over a larger formation area, the pumping action of sleepers has been eliminated, and drainage has been carried clear of that portion of the formation under the track. To the last-named end the slabs are tapered from 6½ in. thick under the centre of the track to 5½ in. at the sides, and measure 9 ft. long by 12 ft. wide. Reinforcement consists of an upper and lower network of ½-in. bars. Each slab contains 2 cu. yd. concrete and 370 lb. reinforcement, the concrete being of a 1:2:3½ mix and vibrated. For lifting, two loops project from the concrete 6 in. off the longitudinal centre line so as to give a slight drag to the trailing side of the slab to facilitate placing under the track; the loops are subsequently burnt off. The method of laying is described below.

* * * *

Method of Laying Concrete Slabs under Track

The concrete slabs described above are placed under the track as follows. First a gang of 26 men opens out the ballast to a depth of 10 in. to 18 in. below bottom of rail level, supporting the track meanwhile on packings at 30 ft. intervals. Following this gang comes a 25-ton crane with a nearly horizontal jib, which first lifts each slab from the slope of the bank upwards and inwards until the cable fouls the outside of the rail. The slab is then set down and the cable transferred to the inside of the rail and a second lift places the slab under the centre of

the track. Meanwhile, the latter is raised by jacks resting on the last slab laid, but under the crane it rests directly on the slabs except that thin wooden strips are placed under the ends of the sleepers to compensate for the slopes in each slab. Ballasting follows up behind the crane. In this way slab laying can be done at an average rate of 101 slabs (909 ft.) in a day of 3 hr. 50 min. actual working time. This system of slabs has proved quite satisfactory and efficient, according to our American contemporary, the *Engineering News Record*, to which we are indebted for this information.

* * * *

Velox-Boilered Locomotive

Probably never before has any type of steam locomotive been rendered a practical proposition only by research in the diesel engine field. Yet it is the development and perfection of the Büchi-Brown Boveri form of exhaust gas turbo-supercharger that has permitted the transformation of one of the ex-P.L.M. Railway 4-6-0 four-cylinder compound locomotives to a high-pressure locomotive with a Velox boiler. The quick steam-raising and high evaporative capacities of the Velox boiler are obtained by pressure combustion with oil or gas fuel, giving high flue gas velocity and a very high rate of heat transmission. The blower which produces the full combustion pressure is coupled to a turbine driven by the flue gases after they have passed over the superheater. For starting purposes this locomotive has a 60-b.h.p. diesel-generator set which drives the air, fuel, and water circulating pumps until the boiler can furnish enough flue gas to drive the turbo-blower set. Once under way, an automatic governing device adjusts the load of the boiler to the cylinder demand. After use in the cylinders, the steam is discharged into the atmosphere. This particular boiler has an evaporative capacity of 12 tons of steam an hour at a pressure of 290 lb. per sq. in. and at a temperature of 380° C. It is claimed that the working pressure can be raised from cold in about quarter of an hour, and there is nothing in the design that should result in such rapid steam raising having a deleterious effect upon the boiler. The cylinders and motion of this rebuilt French National Railways locomotive have scarcely been modified, but opportunity has been taken to streamline both engine and tender, and to place the driving position at the front, where the driver has a perfect view of the line.

* * * *

Smarter Shunters

Such beauty as the steam shunting locomotive possesses is presumably to be found in its fitness for its purpose. The diesel-electric shunter has had the advantage of evolving in a period when more attention is paid to industrial design, and an article in the *Railway Age* shows that the latest types in the U.S.A. possess really attractive outlines. Early shunters of the type were hutchies on wheels, carrying the mechanism amidships and having a driving compartment at each end. The next step was to place the driver in the middle, and to give him a view in both directions from the one position by locating the engines fore and aft under housings narrower than the cab. His outlook was somewhat similar to that of the driver of one of Mr. W. A. Stanier's L.M.S.R. suburban tank engines when running bunker first, the bunker being narrowed at the top to provide a direct view ahead. A general "cleaning-up" of the design has proceeded since then, former protuberances being neatly recessed, and ugly corners rounded. Our only criticism of the latest style illustrated in the *Railway Age* is that it looks too good to shunt.

The "Evening Standard" on "Starved Railways"

THE fall in the traffic receipts of the four main-line railway companies which first began to show itself in the eleventh week of the present year has been persistent since June. It was first noticeable in merchandise earnings and to a lesser degree in coal, and it has now been extended to passenger train receipts, but £2,345,000 of the present total decrease of £3,259,000 is in merchandise, and there is little sign at present of the revival in trade which, in some quarters, had been expected to show itself in the autumn. Shareholders had been warned of the substantial increases in expenditure which were likely to accompany the fall in receipts, but did not appear to grasp the realities of the situation until the appearance of the half-yearly statements towards the end of last month produced a series of shocks, which are still being felt. At the beginning of this year Great Western ordinary stood at 64½, on March 23 at 55½, on June 29 at 47, and this week at 33½. L.M.S.R. ordinary began the year at 30, on March 23 it had dropped to 21½, on June 29 to 16½, and this week to 13½, and the 1923 preference stock which was priced at 70 in January has now fallen to 27½. L.N.E.R. 1st preference which was 67½ on January 5 fell to 41 on July 20, and now stands at 24½, and the 2nd preference has fallen from 27 at the beginning of the year to 10½. Southern preferred ordinary was priced at 87 in January, on March 23 it had fallen to 76, on June 29 to 68, and this week stands at 50½. The deferred ordinary which stood at 20½ in January has now come down to 12½.

For what it is worth it may be pointed out that at one time in 1932 lower prices were quoted for all these stocks than those recorded this week. The lowest price for Great Western ordinary, for instance, in that year was 22; for L.M.S.R. ordinary 9½, and for 1923 preference 13; for L.N.E.R. 1st preference 15, and for 2nd preference 8½; for Southern preferred ordinary 13½, and for deferred ordinary 5. Present prospects for holders of ordinary and junior preference stocks are by no means cheerful, but the reckless casting away of stocks at present prices can do no good and will only serve to retard a recovery similar to that attained between 1933 and 1937.

It is satisfactory to note that the seriousness of the railway situation is being appreciated in the daily press. The *Evening Standard* on Tuesday published an editorial article on "Starved Railways" which goes to the root of the matter. As we have already shown, more than two-thirds of the decrease in traffic receipts is in merchandise, which normally provides such a large part of the revenue of three of the group railways. Even in the comparatively prosperous years of 1936 and 1937 the merchandise traffic carried by the railways was considerably less than that conveyed by them in 1929 during which there was the nearest approach to normal conditions during recent years. In this connection our contemporary pertinently says:—

"Is it in the public interest that roads should be congested and the railways starved by permitting motor vehicles to carry goods whose carriage by rail would be more appropriate?"

"No attempt has up to now been made to exclude from the roads those classes of heavy goods which the railways were designed to carry, and from whose progressive diversion to road transport their traffic receipts are suffering."

"The trunk roads today are cluttered with vehicles laden with bricks, cement, steel forgings, iron pipes—to instance only a few types of load destructive to road surface and economically inappropriate for conveyance

on highways already inadequate for the volume of fast-moving traffic.

"Here surely is a direction in which steps should first be taken to assist the railways. If the Minister of Transport, after careful inquiry into industry's needs, banned altogether from the roads a list of 'unsuitable' types of freight, the railways' now dwindling receipts per ton-mile would instantly benefit and there would be a significant economy in the costs of road upkeep."

"Action on these lines is urgently needed, and the limitations on types of load should apply not merely to common carriers, but to firms using road transport exclusively for their own goods."

"Let there be full support for any pressure needed to make rail transport more expeditious; but let there be no countenance given to manufacturers' unwarrantable claims to be allowed to congest and destroy the highways with loads of pig-iron, while the railways are under-employed."

* * * *

Transport Co-ordination

IN the *Railway Review* for August 18, Mr. John Marchbank, the Secretary of the National Union of Railwaymen, reviewed the present downward trend of railway earnings in the light of the recession in trade which has become increasingly evident since last autumn. Having in mind the present financial outlook of the main-line railway companies, he argued that attention must be given forthwith to what he regarded as two fundamental problems of railway economics, namely, the competition of road transport, and the composition of railway capital. He urged, therefore, the appointment by the Government of a Royal Commission to investigate the whole position from the standpoint of these two problems, with a time limit on the investigation and the condition that it should present an interim recommendation on transport co-ordination within three months of its appointment. We would point out, however, that the Transport Advisory Council was appointed under Section 46 of the Road & Rail Traffic Act, 1933, for the purpose of giving advice and assistance to the Minister of Transport in connection with the discharge of his functions in relation to the means and facilities for transport and their co-ordination, improvement, and development. This council is most representative, including members of such diverse interests as railway companies, the users of mechanically-propelled vehicles, horses and horse vehicles, canals, coastwise shipping, docks and harbours, local authorities, labour, and pedal cyclists, all of whom are concerned in the question of the co-ordination of transport. In December, 1935, the council set up a special committee of investigation to consider the question of "Service and Rates" in relation to the transport of goods, and, after studying comprehensive memoranda furnished by numerous national transport organisations, the committee reached some important conclusions which were approved by the council on July 22, 1937, and subsequently published.

It is useful to recall, therefore, that these conclusions included the points that, in the national interest it is desirable that as great a degree of co-ordination as possible should be effected among the various forms of transport engaged in the transport of goods; that the best method of achieving co-ordination is to aim at securing for traders adequate alternative facilities, taking care that the resultant competition is on fair terms; and that there should be an unfettered right on the part of the trader to select the form of transport most convenient and economic for his purpose. The committee also expressed the view that any attempt to dictate services, and to

endeavour to dictate that particular goods should go by a certain form of transport would be impracticable and would not be tolerated by public opinion. It urged, however, that all forms of transport should, where practicable, be rate-controlled, with publication and no discrimination, in order to secure a fair basis of competition. After very lengthy enquiries and consideration, the committee reached the view that the creation of a central rates tribunal dealing with the rates for all forms of transport would be premature, and that an essential preliminary was the internal organisation of the road transport industry and the stabilisation of wages, working conditions, and rates within that industry, the latter point being regarded as the first essential to any real progress. The Minister of Transport accepted these views, and the passing of the Road Haulage Wages Act this year is the first step along the line suggested by the committee. This Act empowers the Minister of Transport to set up central and area wages boards, and, until these have begun to function satisfactorily, there is little prospect of any substantial measure of internal organisation being achieved in the road haulage industry. In these circumstances there seems to be little likelihood of a Royal Commission being appointed to make an interim recommendation on the admittedly difficult question of transport co-ordination within such a short period as three months.

So far as the question of railway capital is concerned, in the absence of any information as to the lines upon which Mr. Marchbank suggests that the matter should be examined, detailed comment is not possible. It should be pointed out, however, that railway capital has never been remunerated at a very high level, and in 1913—one of the best years—the net revenue was only 4.38 per cent. of the capital receipts, while for 1937 the percentage was 3.47, and the present indications are that the figure for 1938 will be considerably lower. A further point is that it is of vital importance to the railway companies that nothing should be done which would be likely to impair the possibility of their continuing to obtain additional capital for the purpose of financing expenditure on the steady improvement and development of their undertakings.

The German State Railway in 1937

A FORECAST of the results of working the German State Railway during the year 1937 was published in THE RAILWAY GAZETTE of April 1 last at page 652. Complete figures are now available from the official report, which is the first to be issued under the new conditions prevailing since the whole of the railways formerly owned by the State Railway Company reverted to the Reich on February 12, 1937. The participation of the Reich in the earnings of the railways was re-arranged with effect from January 1, 1937. Instead of a regular contribution of RM. 70 million per annum, the Reich now receives 3 per cent. of all revenue up to RM. 4,000 million and 9 per cent. of additional receipts. Total indebtedness was reduced by RM. 207.7 million in 1937, and consisted of the following items at the end of December:—

	RM. million
Preference shares	1,081.0
Young loan	156.2
Railway company bonds, 1935	150.0
Railway company bonds, 1936	100.0
Tax-free loan, 1931	210.2
Building credits	324.4
Other obligations	503.3
Total	2,525.1

The former record figures of 1929 were exceeded in 1937 in all branches of traffic. In comparison with 1936

the number of passengers increased by 12.3 per cent., and the receipts therefrom by 10.9 per cent. Goods traffic, which provides about two-thirds of the total traffic revenue, increased in quantity by 11.9 per cent. in comparison with 1936, and by 85.4 per cent. in comparison with 1932, and its receipts were 11.5 per cent. higher than in 1936 and 70 per cent. above those of 1932. In comparison with 1929, however, receipts did not increase in the same proportion as the volume of traffic. This discrepancy may be accounted for by the numerous reductions in charges and the various special tariffs which have been introduced in furtherance of Government plans. Some operating figures are compared in the accompanying table:—

	1937	1936
Passengers	1,808,000,000	1,610,500,000
Public goods, tons	448,635,000	401,076,000
Train-kilometres	813,248,000	764,360,000
Net ton-kilometres	88,543,000,000	76,220,000,000
Length of line owned, km.	54,522	54,458
Operating ratio, per cent.	90.60	88.16
	RM.	RM.
Passenger and luggage receipts	1,186,242,288	1,069,869,751
Goods traffic receipts	2,938,964,105	2,635,627,852
Gross receipts	4,420,233,941	3,984,788,006
Operating expenses	4,004,928,834	3,512,970,045
3 per cent. contribution to the Reich	120,000,000	—
Surplus	295,305,107	471,817,961

The figures of operating expenses in both years include maintenance and renewals. In 1937 the expenditure on renewals amounted to RM. 791,087,330, against RM. 454,411,464 in 1936. Sundry additional receipts brought the total net income in 1937 to RM. 357,053,582. Out of this amount the sum of RM. 348,908,902 is appropriated to dividend on the preference shares and other charges, which include RM. 37,821,055 for the further 9 per cent. due to the Reich on the RM. 420,233,941 of gross receipts, leaving RM. 8,144,680 to be carried forward. The length of line under electrical operation reached 2,287 km. at the end of 1937, as against 2,284 km. at the end of 1936, and during the year good progress was made with the work of electrification between Halle/Leipzig and Nürnberg and between Stuttgart, Zuffenhausen, and Weil der Stadt. The number of staff employed rose during 1937 by 43,600, or 6.6 per cent., to a total of 703,546, and their remuneration increased from RM. 2,356.3 million to RM. 2,480.2 million.

EXETER ST. DAVID'S STATION.—Details of the first instalment of the Great Western Railway Company's comprehensive scheme of improvements at Exeter have been announced. This part of the scheme provides for: The complete remodelling of the station building on the "down" side; widening the building on the station approach side by 11 ft. for a distance of 170 ft.; and erecting a canopy covering for cars, 350 ft. long, running along the whole front of the building. The present architectural features of the station will be retained, and the new work will be faced with stone to match, so that the completed building will be in harmony with the Cathedral City. The work will be done in two stages, the first of which will begin in the autumn. Prior to this, temporary booking office and waiting rooms will be constructed on the open space in front of the station, and temporary cloak rooms near the Divisional Superintendent's Office. The first stage will consist of the remodelling of the building at the London end of the station, and the erection of the new addition to the building. When completed this will provide on the ground floor a wide station entrance, large booking hall and booking office, public enquiry office, luggage hall, and spacious refreshment and dining rooms.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Locomotive Power Formulæ

Nigerian Transport Services,
Director's Office, Lagos

August 4

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—It is necessary to adopt a unit of power when preparing the annual programme in regard to the renewal of locomotives which are to be retired, either at termination of their theoretical life or because of uneconomical performance. To produce the necessary unit of power some formula has to be used, and that for tractive effort is usually adopted. The tractive effort figure used indicates only the power exerted by a locomotive at the moment of starting. It takes no account of the boiler capacity, which may be unable to keep the cylinders properly supplied with steam when running. To renew locomotives on a basis of replacing starting tractive effort is really meaningless as a true measure of locomotive capacity. Neither does total tractive effort represent the total haulage capacity of a railway's fleet of locomotives. With increasing strictness of railway accounting in relationship to operating facts, something better is needed. It is suggested that boiler horsepower is a more accurate representation of locomotive capacity and might be a better unit of power than tractive effort in the programming of renewals. The matter is of general interest and calls for careful thought. I venture to ventilate it through the columns of THE RAILWAY GAZETTE.

Yours faithfully,

G. V. O. BULKELEY
Director of Transport Services,
Nigeria.

[We are in agreement with Mr. Bulkeley's contention in so far as the purpose he names is concerned. In other circumstances, however, the tractive effort figure, so easily obtainable by the use of the very simple formula applied to the known dimensional statistics of a locomotive, is perhaps the most convenient means of arriving at what is required.—Ed., R.G.]

The Flying Scotsman

56, St. Mary's Mansions,
Paddington, W.2.
August 14

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I am glad that "Veritas" has called attention to the apparent "injustice" of the schedules of the Flying Scotsman, and of other East Coast trains, between York and London. The risk to punctuality is, of course, very much greater on the up than on the down journey, for in the latter case the timing north of York provides a liberal margin for recovery of time lost from London to York, but this is not a consideration likely to commend itself to the operating authorities, and "Veritas" might fairly have added that the fast timings in force over the final stages of the up journey are contrary to what we have always believed to be good timetable practice, and that the risk of unpunctuality at King's Cross is increased by the very meagre station-time allowed at Grantham.

It naturally becomes a serious problem when, in addition to the three-a-side third-class seating, a train has to carry over 135 tons of "fluid" catering space, but I feel sure that, after the experience of heavy summer week-ends, the presence of the buffet-car on the Flying Scotsman will be more than justified by the great relief it provides to the restaurant-cars, where a very much more satisfactory service can now be given on busy days. But the weight, and sche-

dule, of the semi-fast Scotsman seems already to be a problem in summer, apart from what we must expect next October! Twice in July I found it struggling to keep the 3 hr. 13 min. schedule from York to King's Cross with a badly overcrowded train of well over 500 tons tare, and I believe that considerable relief would be given (and some additional trains, perhaps, saved) if the Flying Scotsman were to call daily at Newcastle, except on Saturday, all through the summer. It is rather amusing to see, in the interesting "Notes for L.N.E.R. passengers" to which "Veritas" refers, how the bulk of the time required for the Newcastle stop, which the Flying Scotsman already makes at the end of the summer period, is taken out of the Great Northern section, leaving practically unaffected the 139 or 143 min. allowed between Edinburgh and Newcastle, which are, I see, 6 and 2 min. faster than the best non-stop timings of May, 1900.

In the case of the high-speed streamlined trains, where strict adherence to schedule intermediately is very necessary from the operating standpoint, and where the publicity value of punctuality is great, some revision of running-times (over and above the slight adjustments of last March) seems equally desirable. I find that out of fifteen journeys by the down Coronation, we have only reached York on six occasions in the allotted 157 min., and although time can be regained north of York, the allowance of 55 min. for the final 57½ miles from Berwick to Edinburgh is so "tight" that the drivers always endeavour to pass Berwick ahead of time. On the up Coronation, on thirteen journeys from Edinburgh, we have invariably arrived at Newcastle two or three minutes early (save on one occasion when we were stopped by signals on the North British), but on the 237 min. booking from Newcastle to King's Cross we have actually kept time on only two out of twelve runs, or on only one out of five since the "adjustment" of schedule last March. It will be understood, of course, that time has not necessarily been lost by the engine on all these days, but that the schedule between London and York makes it practically impossible to recover, on this section, time which must occasionally be lost by unavoidable delays, although a further adjustment of the booking might, I believe, provide the desired latitude. Is it appreciated, I wonder, that the down Coronation must, to keep time, pass Sandy in about 38 min. from the King's Cross start, although an allowance of 38 min. is also given over a similar distance from the York start to pass Darlington?

Yours, &c.,

R. E. CHARLEWOOD

L.N.E.R. TO BUILD BRITAIN'S LARGEST WAGON.—The L.N.E.R. has decided to construct a special trolley wagon which will be capable of carrying a dead load of 120 tons and will be the largest and heaviest single freight-carrying unit in Great Britain. This vehicle will be carried on at least twelve pairs of wheels, and it will be so arranged that by the use of cantilevers its load capacity can be increased at will up to 150 tons. This vehicle is being built to meet the increasing demand for special wagons of high capacity for the conveyance of exceptional loads of machinery such as stators and turbines, without transshipment direct to Continental destinations by the L.N.E.R. train ferry between Harwich and Zeebrugge, and the vehicle will be specially adapted for running over the lines of the Continental railways. At the same time, to provide for this Continental traffic, the L.N.E.R. will convert two existing 55-ton wagons into one wagon of 100 tons capacity for similar work. Only recently the L.N.E.R. transported a 69-ton converter direct from Sheffield to Italy by this train-ferry service, and the load remained in position on the special wagon from the time it left the sender's works in Sheffield until it arrived at its destination in Italy.

PUBLICATIONS RECEIVED

Canadian Pacific Foundation Library. Canadian Pacific Railway Company. Six volumes, $7\frac{1}{2}$ in. \times 5 in.; and four, 8 in. \times $5\frac{1}{2}$ in.—We have received from the Canadian Pacific Railway Company a small and compact case containing 10 volumes forming the Canadian Pacific Foundation Library. These little books are issued by the company for the benefit of the employees in the world-wide organisation of the Canadian Pacific. The first five of the series are intended for purposes of reference, beginning with "Canadian Pacific Facts and Figures" and "Factors in Railway and Steamship Operation," and including two volumes of Canadian history and a book of songs. The five others are reprints of works by recognised authorities and may be described as instructive, as the titles suggest. There are an "Introduction to Economics"; a volume on "Correspondence and Salesmanship"; a third on "French Self-Taught," and the series is completed by "Speaking in Public" and a "Dictionary of Correct English." In "Canadian Pacific Facts and Figures" the list of general officers, from the President downwards, with the date of entry into the service and commencing salary, is no doubt intended to serve as an indication to the staff that the humblest railway employee in Canada may aspire to promotion to the highest office. In the volume on economics we notice the omission of any reference whatever to the origins of the recent political events in Alberta, although, strangely enough, the author of the book writes from the city of Edmonton. The library has been collected by the company, and issued in a uniform binding, with the idea of affording all the company's employees, and especially those at isolated stations, an opportunity of acquiring, at very reasonable prices, a collection of books which will serve as a small library and form a basis for self-instruction in certain useful branches of knowledge. No price is quoted, and beyond the *ex libris* of the company there is no indication as to the nature of the library, its extent, or its future extension.

Battlefields of France.—A new folder entitled "Visit the Battlefields of France" has been published by the French National Railways. On one side is a railway and road tourist service map, showing the sites of important engagements or incidents in the war with their nearest means of access. Similar information is given in tabulated form on the other side of the folder, under the heading "Martyred Towns and Villages." The folder is published in English, and is obtainable from the London office of the French National Railways at 179, Piccadilly, W.1, or from the Southern Railway Continental Enquiry Office at Victoria. A programme of motor-coach tours of the battlefields starting

from Compi gne, Rheims, Verdun, Colmar, Mulhouse, or Belfort, is enclosed with the folder.

Top Sawyer: A Biography of David Davies of Llandinam. By Ivor Thomas. London: Longmans, Green & Co. Ltd., 39, Paternoster Row, E.C.4. $8\frac{1}{2}$ in. \times $5\frac{1}{2}$ in. \times $1\frac{1}{2}$ in. 356 pp. Illustrated. Price 10s. 6d. net.—David Davies spent his early years working in a saw pit, and it was there that he occupied the position of "top sawyer" in working the long saw, which means of course, the upper of the two operators and therefore the one guiding and directing the work. At the death of his father, David Davies was heard to say that henceforth he would always be top sawyer, and he kept his word in more senses than one, for throughout his subsequent career he was always the directing force in any enterprise which he undertook. By 1850, Central Wales was still devoid of railways and it was in this area that Davies was to make his name and his fortune. His first big railway tender was made in response to an advertisement issued by the Llanidloes & Newtown Railway Company, on September 28, 1855. By that time he had gained experience as a road contractor, and, although the work proposed was far bigger than anything he had yet undertaken, the plan for making the line in small sections, and the method of payment by cash in monthly instalments, placed the task well within his capacity. His figure was the lowest received, and he was given the job. Thereafter his most active years were spent in railway construction in Wales. Some of the contracts were carried out in partnership with Thomas Savin, but difference in temperament and policy resulted in a dissolution of the partnership, whereupon Davies carried on as sole proprietor. The Van Railway, which he built in 1871, brought the total length of his railway construction up to 144 miles. All were made on the standard gauge of 4 ft. 8½ in. and were mainly single track.

Davies's connection with railways did not cease when he stopped building them, for he became a director at one time or another of no fewer than 11 railways, including all but one of those for which he had been contractor. In later life he was concerned with both coal mining and politics, and in these spheres was founder of the Ocean Coal Company, creator of a great dock, and a Member of Parliament who broke with Mr. Gladstone in 1886 on the subject of Home Rule. The preparation of this biography has been well carried out and must have involved a very considerable amount of research. Moreover, it is adequately indexed and contains a valuable chronological sequence of the career of its hero. It portrays vividly the successful, rugged, and, within his lights, honest character of a great railway contractor of the middle period of construction, and as such is a useful addition to works on

nineteenth-century industrial biographies.

Industrial Flooring.—An illustrated catalogue from Stelcon (Industrial Floors) Limited, of Clifford's Inn, London, E.C.4, shows numerous types of flooring on industrial premises made from the firm's Anchor steel plates, steel-clad flags, and M.S. flags with a rustless mineral top covering. They are seen in railway works, factories, and at docks and wharves. The floors of the North-Western Railway (India) locomotive workshops at Lahore, for example, are laid with Stelcon Anchor steel plates, consisting of 10-gauge steel secured to concrete, forming an immovable floor.

A.R.P. Warnings.—Klaxon Limited, of 201, Holland Park Avenue, London, W.11, has published an illustrated catalogue of air-raid warning devices for internal and external situations. These are of various types, such as gongs, sirens, whistles, or sound-emitters with vibrating diaphragms, and the firm places at the disposal of clients a wide experience in the recommendation of warnings immediately distinguishable from extraneous background noises. The various devices embrace patterns for operation by compressed-air, mechanical power, electricity, or by hand. One electrical siren illustrated is audible over four miles, and a pneumatic horn capable of being worked from an air-compressor as used in garages for tyre-inflation can be heard over 3½ miles. The maker also supplies self-contained warning devices, consisting of a siren coupled to a petrol engine, for use where electric supply is not available. Such units can be supplied in portable form.

Overland Across Australia.—An account of the Perth-Sydney transcontinental journey that is as informative for the ordinary reader as it must be useful to the traveller is contained in an illustrated pocket folder issued jointly by the Australian railway systems. Passengers are told of the cities and scenery they will pass through, the accommodation on the various trains concerned, and when to advance or retard their watches in accordance with the change in longitude. The schedules are set out in ordinary timetable form, and are amplified with separate narrative notes stating the distances covered on the different gauges, and arrangements at interchange stations. All passengers, of course, have to change at Kalgoorlie, Port Pirie Junction, Melbourne, and Albury, on account of the breaks of gauge or the times of trains (the eastbound Overland, for example, arrives in Melbourne at 9.35 a.m., and the Spirit of Progress does not leave until 6.35 p.m.). Between Port Pirie and Melbourne, however, through first class sleeping cars are run, and passengers in them need not change at Adelaide unless they have reserved seats in the Pullman cars, which run between Adelaide and Melbourne only.

THE SCRAP HEAP

Nearly 60 years after her brother lost his life in the Tay Bridge disaster, Miss Janet Patteson Scott, 74, of St. Andrews, is asking for the first time that she be allowed something out of the fund raised for the dependents of the victims. She had been a domestic servant all her life until her retirement four years ago.

A reader who has just returned from Ireland writes to us: It seems that on her journey from Holyhead or some such place her railway carriage was shared by two very elderly and respectable ladies. The silence, she tells us, was unbroken until the train pulled into Cheltenham. It was there that one leaned forward. "Emily," she said, "has a very good reason for remembering Cheltenham."—From "By the Way" in the "Daily Express."

SLEEPS BETTER IN A TRAIN

Sir Hugh Robertson, the Scottish musician, who recently travelled across Canada, adjudicating at music festivals, said: "I am one of those odd individuals who sleep better in a train than anywhere else. Canadian trains I find particularly sleep-inducing. They are also musical; one goes to sleep to the accompaniment of bells and horns. The beds are wide and comfortable. And the dining cars have style. Then there is the parlour car, where one can stretch one's legs, loll on a comfortable easy chair, smoke, read the newspapers, look out on the landscape. I am never bored on these trains, even on the longest journey."

AN HISTORICAL TRAIN JOURNEY

It was the memorable night of April 14, 1931. King Alfonso had left for Cartagena. The night was full of threats and the revolutionary crowd did not disperse. The Queen and her daughters made preparations for their sudden journey. At last, at half-past four in the morning, the welcome news was received: "The King has arrived at Cartagena and is already on board the *Principe Alfonso*." But at the last minute a new difficulty disturbed the arrangements for the journey of the Royal Family. It was not possible to leave by the Northern station as had been arranged, because it was already eight o'clock, and the express from Irun was expected at any moment, bringing the revolutionary leaders, for whom a tremendous reception was being prepared. In view of this it was suggested that the Queen and her suite should drive by road to the Escorial station, and this plan was adopted. Meanwhile the mob which had invaded the square in front of the palace had moved off towards the Northern station. No one knew that the Royal Family had left by car and they were expected to take the express for France, as had been

announced. The mob broke into the station and took possession of the platforms. The Chief Engineer of the Northern Company, the Marquis de Benicarlo, and other functionaries who were going with the Royal train, found themselves obliged to wear overcoats to hide their uniforms, so antagonistic was the attitude of the crowd. The train had been kept outside the station in order to avoid possible disorder, and the general state of tension was acute. The express arrived from Irun, but the new Revolutionary heroes were not in it, the connection having been missed at the frontier. The Royal Pullman car, which had to be detached from the train because it bore the Royal Arms, had been sent to the Escorial by a pilot engine, but even so the train was taken by assault when it entered the station, travellers being crushed back into the compartments and corridors by the invaders. The most audacious even climbed on to the roofs of the carriages. It was useless to ask them to abandon their conquered positions, and at last the signal was given for the train to start. Its departure took place amid prolonged cries and only on its arrival at Villalba did the Civil Guards succeed in clearing it of the unauthorised intruders.

At last the Escorial! When the express arrived after a considerable delay the Royal party was already installed in the Pullman car which had been sent on from Madrid. At last they were off as the train steamed ahead at full speed to make up for lost time. But the exiles' misfortunes were not yet over and there was still cause for anxiety. In the small station of La Cañada the express was stopped as one of the axle-boxes of the Royal Pullman was on fire. All danger was over very quickly but the railway employees were stupefied to find the axlebox full of sand. Sabotage, or accident? A first class carriage was hurriedly brought from Avila and the Sovereign was installed in a reserved compartment kindly given up to her by some American traveller. Then the journey continued, and there was a great manifestation of affection and allegiance in almost all the stations, in marked contrast to the behaviour of the masses in Madrid. Valladolid was the only exception.

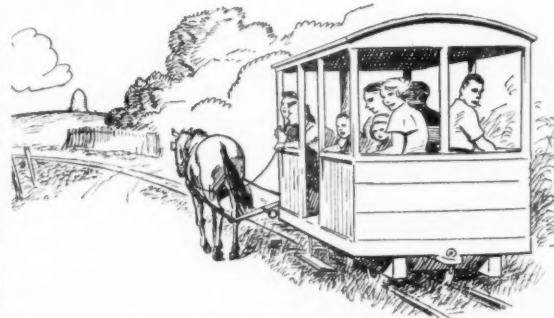
The platform was crowded with workmen waiting to welcome the Republican leaders, and hisses and fierce cries were heard. The immediate departure of the train was ordered on this account, but Burgos, the next station, effaced in part this desolating impression. Here there was the evidence of Castilian chivalry. An immense and genuinely

enthusiastic multitude acclaimed the august travellers. And then, Miranda de Ebro . . . Vitoria . . . where there was again a loyal ovation. And in San Sebastian an enormous multitude had gathered to offer a great reception. San Sebastian behaved worthily in the hour of disgrace. The same could not be expected of Irun, the frontier city, because Irun was always a centre of republicanism. Amongst the many spectators present in this last Spanish station were many railwaymen, adherents of the revolution, but it is only fair to remember that they preserved a correct attitude and respectful silence. At last the train crossed the Bidasoa and arrived at Hendaye! The Royal family was now safe from the revolutionary threats and the blind exaltation of the republicans.—Abridged from "The Fall of a Throne," by Alvaro Alcalá Galiano.

Now that the train services formerly using the Colonia station in Mexico City have been transferred to Buenavista, Colonia has been abandoned and its site handed back to the local authorities. A large public park and a bus station are being created where the station once stood.

The day was hot, and the carriage seemed stuffy. The journey by the slow train, stopping at small country stations, had appeared endless. At last, however, after a period of waiting outside the station, the train pulled up triumphantly at the junction. Mr. Maconochie commenced to collect his luggage, and as he dumped it on the platform, remarked, "Well, thank goodness that's the worst part of the journey over!" "Are you going to London, then?" queried his fellow passenger. "No, to Cape Town," was the reply.—From "The Best Railway Stories."

We reproduce from the pages of our American contemporary, the *Railroad Magazine*, a sketch of a "train" which makes two trips a day on what is described as the world's longest horse-car railway. This line, which is 18 miles long, extends from Baldone to Ikšķile in Latvia. It was built in 1916 by the German army and is still operating.



Present-day horse railway in Latvia

OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

INDIA

Railway Commissioners on Tour

Mr. L. Wilson, Acting Chief Commissioner of Railways, and Mr. B. M. Staig, Financial Commissioner, have just concluded a tour of the important commercial centres in India. On their visit to Calcutta, they met the representatives of the Indian and European Chambers of Commerce and discussed questions relating to general railway policy. These included the action taken by the Government of India on the recommendations of the Wedgwood Committee and the need for an expert examination of the railway freight policy, with special reference to the change that has taken place in the relative importance of the foreign and internal trade of India and the progressive industrialisation of the country in recent years. It is understood that the Chief Commissioner stated that the Government did not intend to effect a general enhancement of rates, though the railways were adjusting rates in special cases to meet changing conditions in trade and industry.

At Cawnpore, Mr. Wilson and Mr. Staig discussed local railway problems with representatives of the Upper India Chamber of Commerce and the United Provinces Chamber of Commerce. A suggestion was put forward that in view of the commercial importance of Cawnpore, the divisional headquarters of the East Indian Railway should be transferred from Allahabad to the former city. The Chief Commissioner is reported to have pointed out that the needs of Cawnpore could be met by giving enhanced powers to the commercial officer of the railway stationed there. The total transfer of the divisional office, on the other hand, would involve considerable additional capital expenditure which was inadvisable in the present uncertain business conditions. The proposal for the introduction of intermediate class mileage coupons, at least tentatively for two years, would, Mr. Wilson stated, receive due consideration.

Vizagapatam Harbour

Two years ago, the Public Accounts Committee was greatly concerned by the fact that the Vizagapatam Harbour, the development of which involved a capital outlay of over Rs. 4 crores (£3 million), had not been earning sufficient revenue to meet the annual working expenses of the port. In addition to a deficit of about Rs. 3 lakhs per annum in working expenses, there was the serious liability of interest on capital outlay. The committee requested the Government of India to investigate the possibilities of developing business at the port, and, if the prospects were none too bright, to consider the question of closing down

the harbour. Since this recommendation of the committee, however, the working of the port has shown a small surplus. Sir T. R. Wynne, Chairman of the Board of Directors of the Bengal-Nagpur Railway, who was an ardent sponsor of the Vizagapatam Harbour scheme, has submitted a note to the Central Government on the potentialities of the port.

Its financial position was again recently reviewed by the Public Accounts Committee. In view of the improved budgetary position, the committee did not consider it necessary to go into the question of closing the port.

Railway Concessions

The travel season in India begins about the middle of September and already the railways are announcing liberal concessions for travel during the Durga Puja holidays; all the three major railways in Calcutta will issue return tickets for all classes at specially reduced rates, available for a period of 45 days. The popular "travel-as-you-like" tickets will again be offered, and concessions will be given for the transport of motorcars for holiday-makers who wish to vary the railway journey with motor trips.

ARGENTINA

New Railway Tariff Regulations

Important changes in the regulations relating to competitive railway tariffs were made by a Government Decree issued by the Ministry of Public Works on July 13. It is officially stated that the object of the new regulations is to insure that the services of competitive lines shall be governed by normal tariffs (with certain exceptions specified in the Decree), and that no company may, by means of special tariffs, divert traffic from other lines to its own. One of the principal clauses establishes that, between points served by two or more companies, the one with the shortest route may apply the tariffs in force for the longest route; also, on the latter the tariffs of the shorter route may be enforced, provided the difference between the two distances does not exceed 30 per cent.

In the case of zones served by several companies with different tariffs, each company may be allowed to apply the tariff of the one immediately below, with an increase proportionate to one half of the difference between the two distances.

When two or more lines compete in a certain area, they must apply strictly all tariffs relating to transshipment, demurrage, unloading, &c., failing which they will be liable to incur heavy penalties; also whenever one company adopts the tariffs of another, they must be interpreted in exactly the same manner

as by the latter. Proposals for the creation of competitive tariffs, on the lines indicated above, must be submitted to the Government for approval, together with the corresponding data, but the National Railway Board may demand any additional details it may consider desirable. All companies are required to draw up a revised list of tariffs, in accordance with the new rules, within six months from the date of the Decree.

National Railway Pensions Fund

The misgivings which, as stated in THE RAILWAY GAZETTE of June 3, are felt regarding the solvency of the above fund, have not been allayed by the balance sheet issued at the end of June, which shows that the fund, in order to keep pace with its disbursements, has been obliged to overdraw its account with the Banco de la Nación to the extent of \$1,079,000 paper. The benefits paid during the first six months of the present year amounted to \$30,620,176, as compared with \$27,068,853 in the corresponding period of 1937, and \$23,391,869 in 1936. Moreover, the figure for 1938 exceeds by over 3 million pesos that for 1935, in May of which year the reduced benefits first came into force.

Income continues to fall. Contributions from the staff and the companies amounted to \$17,720,413 paper, as compared with \$19,895,286 in 1937, and \$17,793,016 in 1936. The serious drop this year, as compared with 1937, is attributed to the decline in railway receipts, which affected the percentage of the revenue payable into the Fund. Comparative figures for some of the main items on the balance sheet are given below:—

	June 30, 1938	June 30, 1937	June 30, 1936
	\$ Paper	\$ Paper	\$ Paper
Bonds ..	281,021,038	282,048,983	277,102,390
Benefits ..	30,620,176	27,068,853	23,391,869
Contributions ..	17,720,413	19,895,286	17,793,016
Income from bonds ..	7,534,499	7,471,178	7,407,665

The Institute of Transport (Argentine and River Plate Centre)

At a meeting of the above Centre, held in Buenos Aires on June 24, a paper by Mr. E. Hammar, A.M.Inst.T., of the B.A. & Pacific Railway, on "The adoption of single class for passenger services in the Argentine," was discussed. Mr. G. C. Bonner, District Traffic Superintendent, Retiro, Central Argentine Railway, Vice-Chairman of the Centre, presided. In his opening remarks, the lecturer stated that the adoption of one-class passenger services was gaining ground all over the world; and even in Europe, where it had been the custom to provide up to three and even four classes on the railways, comparatively few passengers now made use of the upper class accommodation. The necessity of adopting one-class services had also been brought up at the different Railway Congress meetings, where it had been realised that the system would bring about simplification of operation and economy, while at the same time providing the means for

maintaining or increasing passenger traffic in the face of road and air competition. In the U.S.A., to which country Mr. Hammar remarked, Argentina had certain tendencies of similarity, the one-class system had been in vogue for many years with excellent economical results. The lecturer enumerated the advantages which would accrue to both the railway managements and the public by the adoption of one-class service for both local and main line traffic, pointing out that the consequent reduction in tariffs would not necessarily involve a lower standard of comfort than that at present existing for first class travel, but would mean greater comfort for second class passengers combined with lower cost for first class and a more rapid service for both. For passengers wishing for special facilities, Pullman cars could be attached to main line trains, for which a small additional charge would be made.

Mr. M. F. Ryan, C.B.E., General Manager, B.A. & Pacific Railway, who opened the discussion, said that he was glad that Mr. Hammar had chosen this subject for his paper, as it was one which was receiving the close attention of his railway. The figures and arguments adduced by Mr. Hammar were worthy of study in connection with the subject, and would be of great assistance in arriving at a solution of the question. Messrs. H. E. Pheasant (B.A.P.), A. Lowe (C.A.), G. E. Brown, S. E. Fay, and E. A. Richards (B.A.G.S. and B.A.W.) having contributed their views, the proceedings terminated with a vote of thanks to the lecturer.

MOZAMBIQUE

Report on the Railways

The railways in Portuguese East Africa may be divided into two categories, (a) those of the Territory of the Mozambique Company, namely, the Beira and Trans-Zambesia systems; and (b) the numerous other lines in Government administered territory. The latter though State-owned are administered by an autonomous body, *O Conselho de Administracao da Colonia de Moçambique*. There are 1,132 km. of line in operation, of which 1,032 are of the standard South African 3 ft. 6 in. gauge. Of the total, 354 km. are accounted for by the four lines radiating from Lourenço Marques and serving the adjoining country, but three short lines connect other ports with the immediate hinterland. The Lumbo-Raine line, 372 km. in length, is gradually being extended to the Nyasaland border. The first portion of the Limpopo Valley railway, from Magude to Guija, 85 km. long, was opened last January. This line, which was begun as a part of the Limpopo Valley irrigation scheme, is to cost £368,000 and when completed will be 128 km. long. It is one of the lines projected under the Six Year Plan, which also provides for the construction

of a railway to tap the rich mineral area in the Tete district, with future extensions, which—if and when carried out—will bring up the total length of this line to some 630 km. The accounts of the railway administration for the economic year 1935-36 (18 months) show earnings £1,264,492, and expenditure £490,458, the surplus thus being £774,034. The number of passengers carried was 498,868, while 1,416,717 tons of freight were transported, of which 897,446 tons were received from the South African Railways. Besides the ordinary equipment, eight motor railcars were in use, and three more Michelin railcars had been ordered from France this year, according to the Report on Economic and Commercial Conditions in Portuguese East Africa, compiled by H.M. Consul-General at Lourenço Marques and published by the Department of Overseas Trade. [The report upon the working of the Beira Railway was briefly summarised on page 320 in our issue of February 25 last.—Ed. R.G.]

GERMANY

Austrian Reorganisation

The Innsbruck Division of the former Austrian Federal Railways has been abolished. The Innsbruck—Lindau, Feldkirch—Buchs, Bregenz—St. Margrethen, Bregenz—Bezau, and Reutte—Pffronten Steinach lines have been transferred to the Augsburg Division of the Reichsbahn, and the Brenner—Innsbruck—Kufstein, Innsbruck—Scharnitz, and Griesen—Reutte lines to the Munich Division. The Wörgl—Salzburg and Zelt Krimml lines have been transferred to the Linz Division and the Schwarzath St. Veit—Spittal Millstättersee (Tauern) line to the Villath Division. Both of the last-named sections formed part of the divisional organisation of the Austrian Federal Railways.

NEW ZEALAND

Electrification in Wellington Suburban Area

On July 2 the multiple-unit electric service between Wellington and Johnsonville was officially inaugurated, and two days later the public service of 52 trains each way daily began on this important seven-mile suburban section of line. Until a year ago this single-line section was part of the main trunk line, but the opening of the Tawa Flat deviation enabled the whole of the main line traffic to be diverted from it, and made possible the present intensive suburban service. The electrification of this section, with its steep gradients and many tunnels, has greatly improved the comfort, speed, and frequency of travel to and from a popular residential area. Electrification to Paekakariki is the next stage in the development of the Wellington area to be undertaken.

FRANCE

Increase in Fares

Certain railway fares in France have been increased since August 8 by a percentage based on station and control expenses. The National Railways Company (S.N.C.F.) under the terms of the convention of August 31, 1937, undertook to balance receipts and expenditure. With this end in view it is now collecting an extra charge, which falls most heavily on holders of season and workers' tickets. The new fares comprise an increase of 12 per cent. on single tickets for the first 6 km. The percentage is reduced in proportion to the distance so that for 800 km. it is only 2 per cent., or fr. 5 for the third class. For return tickets, the increase is about 30 per cent. for distances between 6 and 10 km. Season tickets for from 6-10 km. pay an increase of 6 to 9 per cent. and above that distance 4 to 7 per cent. For long distances the extra charge is the same for 400 to 1,000 km. or more.

Holiday Traffic Rush

Some idea may be formed of the rush of traffic on August 5 and 6, due to the closing of Paris factories for a fortnight's holiday with pay, when it is stated that nearly 250 extra trains were run to seaside and inland resorts. The closing of the Renault works alone set free 35,000 men, who took their families on holiday, and most of the shopkeepers in the district joined in the exodus. Fifty trains left the Gare de Lyon between 6 p.m. and midnight on Friday, August 5, and almost as many the next morning including 23 between 7 and 8.45 a.m. More than 30,000 seats were booked in advance for the Friday evening, and all the rolling stock of the Sud-Est (former P.L.M.) region was requisitioned. Rolling stock was brought to Paris from remote parts of the country and more than 1,000 coaches occupied 25 miles of sidings. The coaches were washed and the thousands of booked seats marked with the special reservation tickets.

Trains sent to the Riviera had to be brought back empty and used for special services at Vichy and elsewhere. For shunting 150 locomotives were used, and all the engine sheds of Paris, Villeneuve-Saint-Georges, Nevers, and Montargis were emptied. Apprentices had to act as additional firemen on the shunting engines. At Laroche, 32 fast trains passed between 10 p.m. and 2 a.m., or more than one every 8 min. and all trains are said to have left Paris and arrived at their destinations punctually, and thanks to the excellent organisation of the Paris station staff everything passed off without a hitch. Though the Sud-Est had to provide for the greatest number of departures, the rush from other termini was also very great, trains in some cases being dispatched every three minutes.

CRANES FOR RAILWAY PURPOSES—II

A review of modern practical load-handling methods

By J. DALZIEL, late Assistant Electrical Engineer, L.M.S.R.

In our issue of last week Mr. Dalziel, in Part I of this article reviewed the various sources of power for stationary and mobile cranes, with comments upon their suitability for different circumstances

Coal Loading Appliances

Coal loading cranes are jib cranes of 50-tons capacity if arranged, as they should be, to deal with 20-ton wagons; their special feature, which is also embodied in grabbing cranes, is the tipping arrangement. In old cranes this is effected by linking up the appropriate end of the wagon lifting cradle to the jib head so that when the cradle is lowered it commences to tip at a pre-determined point, the end door latches of the wagon being disengaged when the wagon reaches a suitable angle; in newer cranes, mostly if not all electric, a special tipping barrel is fitted. This is generally operated by individual motor coupled to and working with the main motor in lifting and lowering, but detached and used to tip the wagon cradle after it has been suitably lowered. The discharge end of the wagon can thus be lowered on to the coal in the hold, and tipping done by lifting the other end, an advantageous arrangement. The tipping barrel may be, and in the case of grabbing cranes frequently is, operated from the main motor by clutch, but separate motor drive is preferable in both cases. The lifting motors of coaling cranes are of about 200 b.h.p., and, as already indicated, with a.c. supply it is general to make them d.c. with variable voltage control from a motor generator.

It is arguable that with cranes breakage of coal in loading is reduced to a minimum as the wagon can be lowered down to a point where the fall is almost nil. Actually to do so constantly would so reduce the rate of loading that it never obtains in practice. At its best the coaling crane is much slower in its rate of loading than either the conveyor or the hoist and therefore causes the undue occupation both of the ship and of valuable quay space, while as regards breakage, according to the writer's experience of tests, its results are no better than those of conveyors fitted with anti-breakers, even in the present early stages of the development of the latter. The crane is also incomparably unhandy in comparison with a conveyor in dealing with difficult and small hatches and in bunkering.

The general situation as regards coaling plants is that while hoists are practically universal, cranes are practically non-existent except in Scotland, having been abandoned in South Wales and, so far as the writer can gather, never having been used to any extent at any of the main coaling ports on the East Coast. On the English N.E. Coast the new installations of recent years have been mainly of conveyor type, and this applies to the installations both of port authorities and of collieries themselves or bodies under their control. The prevailing coaling appliance in South Wales is the hoist, but some conveyors have been installed in recent years.

Quay-Side Cranes

Grabbing cranes are of lower capacity than coaling cranes; when intended primarily for grabbing they have the same double barrel arrangement to hold the grab on

one barrel and open the jaws, by continuing to lower on the other. On cranes used both as grabbing and cargo cranes the bell discharge type grab is fitted; it is discharged by being run up into, and its weight taken by, a bell supported from the jib head, the jaws being opened by lowering the main hoisting rope.

The crane most generally in use for dock and harbour cargo handling, and that giving most ground covering power with the lightest weight movement, is the luffing and slewing jib crane. Power travelling is in general used for positioning only. In some cases the luffing motion is replaced by mounting the jib on a traversing under-carriage. This involves greater weight movement in operation, requires heavier balance weights and has constructional disadvantages.

Cranes of transporter type, *i.e.*, having a crab or monkey running on straight girders at right angles to the quay face from ship to shore, are in some use for cargo handling, and where it is sufficient to work between set points in a straight line with each other they can no doubt give fast service with movement of very little weight extraneous to the actual loads. But they have no covering power lengthwise of the quay except by the slow and extravagant movement of the whole crane.

Luffing Devices

Luffing is the only motion that need be referred to; it is that varying the radius of the jib to avoid obstructions in slewing and to pick up and deposit loads from and to varying positions without having to travel. As originally fitted, luffing involved considerable vertical movement of the load and to avoid this numerous level luffing devices have been evolved. Of these the simplest is to follow the Scotch derrick in building up the central structure of the crane to roughly jib head height, and carry the lifting rope over it. The real importance of level luffing is that, by eliminating the vertical movement of the load, the speed of luffing may be much raised, so making the motion one to be used in the regular cycle of the crane's movement. The power required is also greatly reduced.

Originally in luffing, the jib was wound in and let out by ropes. Of recent years various methods of luffing by the partial rotation of a crank, coupled by rod or rods to a jackshaft, have been used, as have also methods using a circular rack and motor driven pinion. With most luffing gears shocks arise, more particularly in starting and stopping, to take up which springs or other form of cushioning should be provided, and these should be easily accessible for examination and replacement when necessary.

Walking or Mono-rail Cranes

As regards other traffic department cranes, the most that need be said of the innumerable shed deck cranes of earlier days is that they are being eliminated as quickly as may be. In substitution, alternatively to mobiles and overheads, walking cranes, earlier referred to, may be installed. They can be put in a lower building than overheads, and also dispense with gantries, &c.; they require floor space, however, for the single deck rail and the width of the crane under-carriage. The rake can easily be sufficient to work over a normal width of deck and to

reach a rail track on the one side and a cartway on the other, but, as with the overhead crane, when despatched with a load the crane keeps the men waiting for its return, and its main usefulness is across the deck.

The single travelling-rail feature, however, facilitates development, and there is working in a shed in the Midlands a set of walking cranes on rails which are doubled and fitted with points so that the cranes go out on one rail and return on the other, passing each other as they do so; one thus comes back to the loading point as the other leaves. Moreover the cranes work round curves and can pass from deck to deck over the temporary bridges customarily provided for transit of barrows, so that they can be massed on any deck that is specially busy; they are also fitted with luffing gear so that they can deliver into box vans and also stack fairly high. Current supply is d.c. effected by rectifier, one pole being earthed to the travelling rails and a single trolley wire used.

Shipboard Cranes

For shipboard cargo handling derrick poles grouped round and hinged at the bottom of the masts were for many years the standard appliance, and are still in extensive use. In very large ships of recent years special structures have been fitted to accommodate them and facilitate their working; in a number of cases, including medium sized and cross-channel ships, jib cranes have been installed. Derricks are operated by winches exclusively steam in the old days, and in higher class passenger vessels frequently of the gearless "silent" type, but more recently largely electric. Three motions are worked from the one winch, two of these by loose ropes on open-ended bollards. Of late an extending practice is to instal a winch for each motion; three winches to each derrick, however, means a lot of deck room. Electric winches are usually worm geared and very silent. They can be operated by controllers placed to give a view direct into the hold without being themselves placed, possibly inconveniently, in the very near vicinity of the hatch coamings as they can be braked electrically; a foot brake for emergency use is desirable, as well.

Shipboard cranes may be self-supporting pedestal type or preferably supported top and bottom. The machinery of electric cranes is generally placed in a space provided for it between decks; the jib is stowed away when out of use either by being let down on rests on the deck or by luffing right up; it should be arranged to respond at once to any slackening of the luffing or other ropes, for with these and the machinery out of sight, if slackening takes place without response, the jib may hang up and then come down unexpectedly and dangerously; also the ropes may come off the winding drums and be tangled and damaged in the gears.

The centre post, electric cables, and ropes should come up through the working deck in watertight stuffing boxes. Remote control with contactors for both starting and braking saves deck space, but drum type controllers are quite suitable if they can be accommodated. Control of both winches and cranes presents a special problem, as even on d.c., which is the invariable supply, the normal speed variation is insufficient to give high enough working speeds for light loads. The motors are therefore generally compound wound and the field windings are weakened or portions cut out on the lighter loads; generally this is such that the motors are worked up to full power on $\frac{1}{3}$ or $\frac{1}{4}$ of the rated full load. There are other means of attaining the same effects, *e.g.*, the cranes or winches are worked on a Ward-Leonard system with a motor-generator (which may be a single machine of special variable voltage construction) for each appliance. One system—the Austin—is a constant-current system in which all the ship's appli-

ances are worked in series, and the appliances themselves may be stalled indefinitely on a load or worked up to any desired speed. This system is very effective and very flexible in control with a minimum of control gear. Its disadvantage is that it requires special generating machinery and special circuits not available for any of the other ship's demands, *e.g.*, lighting, ventilating, &c.

Methods of Braking

Steam cranes brake generally through foot pedals on the winding barrel. Hydraulic cranes brake by closing the valves. Constant speed electric motors, such as the 3-phase and shunt d.c., will brake by generating back into the mains at speeds above normal rated speed; the only practical application of this is the question it raises as to the arrangement of resistance on the lowering side of an a.c. crane controller. As speed rises with the insertion of resistance in the rotor circuit the proper course would appear to be for the rotor to be switched on without resistance in circuit on the first reversing notch. Actually lowering should take place mainly on the mechanical brake.

In general on all electric cranes a magnetic brake, lifted off by the working current and re-applying itself when current is switched off, is provided, thus giving a safeguard against any failure of current. This is sufficient for most short lift and lightly worked cranes, Goliaths, overhead travellers, &c.; but to guard against gear breakages the brakedrum should be on one of the slower motion shafts, even though this involves greater brake power and more powerful brake magnets. In itself this is not sufficient for safe lowering, and a mechanical foot or hand release to the solenoid brake weight should be fitted, giving control of lowering by the amount of release. If the driver happens to misjudge speed or distance he cannot add to the brake power.

The mechanical release is a feature that is liable to be overlooked where responsibility for the mechanical and the electrical portions of the crane respectively is divided; without it, even though the first lowering notch of the controller may be arranged to lift off the brake without giving current to the motor, lowering cannot be done safely at a reasonable speed or other than in a series of short jerks of the brake, and current, on and off. For erecting shop travellers requiring delicate adjustment in lowering, several mechanical brakes are available; these release fully in lifting, but in lowering present a frictional resistance requiring the load to be driven down, the friction surfaces being of a nature to present uniform steady resistance and to remain in adjustment over long periods.

Value of the Human Element

On quay-side cranes the solenoid brake with release is fitted in nearly all cases as a secondary brake, and the writer has known it used as the main working brake in cranes of quite considerable lift and speed. It is, however, not a suitable and certainly not the best form of working brake for cranes of the speed of quay-side jibs. Automatic anti-overspeed brakes are sometimes fitted; this, however, is best left to the driver, who should not be made a robot and who is generally capable of getting the best out of his crane and interested in doing so.

Dynamic and potentiometer brakes utilise generation by the motors on to an absorbent variable resistance, the degree of braking, and speeds, being varied by contacts suitably arranged on the lowering side of the controller. With these brakes, obviously no definite hold-up of the load is attainable, but it can be got down to a creeping speed, particularly with potentiometer braking. The latter is the more certain in its action, and is less liable to be affected by the state of brushes and contacts, &c., as with

it there is definite—generally variable—excitation of the motor fields from the mains; the motors sometimes have a light shunt winding. There are numerous variations of the circuits and arrangement of such brakes. They are extensively used both for cranes of all types and for winches; their control being notch by notch, there is not continuous graduation, and the effect on the same notch varies with load, but can generally be satisfactory with adjustment. The braking effect of course being developed in the motor has to come through the whole train of gear.

The brake best suited to quay-side and other high speed work is the free-barrel type; this is purely mechanical and direct-acting, entirely adjustable to requirements at the will of the crane-driver, and therefore giving him the confidence essential to high-speed lowering, which is also assisted by lowering taking place without reversal or movement of the motor and gear. The brake is in general pedal-operated; the brake drum forms part of or is coupled to the main winding drum, which in turn is coupled to the main shaft through a clutch generally of the coil type. In these present days this clutch is normally held engaged by a weight, and is released by a solenoid lifting the latter on the first or second control lowering notch; early cranes of which the writer has experience engaged the clutch as lifting current was switched on, so that at the top of the lift it automatically disengaged. Though this required the load to be taken immediately in charge by the driver; no mishap ever occurred in these cranes during 24 years' service. With the modern method, which at least appears safer, an interlock, actuated by the movement of the controller to the disengaging notch, must be provided to ensure that current failure cannot throw the moving load and drum on to the stationary armature and gear by unexpectedly engaging the clutch.

Control Gear

As regards control gear, while this in itself is constructionally complicated, operative control of every movement is reduced to movement of a lever or handle either in a sequence that does not matter or that, by interlocking, can be done only in the right way. Drum type control

is almost universal up to 50-100 h.p.; contactor control is used from 50 h.p. upwards.

Wear from sparking and burning should be confined to a minimum of parts easily and cheaply renewable; also it should not be necessary to take out and scrap half-a-pound of copper or carbon to make good half-an-ounce burned away.

It is generally possible to provide for any desired series of connections, *e.g.*, magnetic lifting brakes are generally released on the first lowering notch without giving current to the motors. Interlocks can generally also be fitted as desired, but it is questionable whether it is not better to trust to the driver's skill than to provide devices which may not be kept in order; they may be useful in early stages. Certain automatic devices are both useful and necessary, *e.g.*, to prevent over-winding and over-lowering and sometimes to restrict speed while not stopping motion altogether.

Mechanical Strength

As regards strength, it should be remembered that electric motors, particularly d.c., may develop many times their rated torque, and that, say in the event of a hook catching in a hatch coaming, protection from mechanical overload is not afforded by the circuit-breakers, as these come out after the current rush. The factor of safety to be specified in the working parts and structure of the crane, and particularly of the wire ropes, should take this into account. Stability is also affected, though the circuit breakers should prevent excess torque being maintained long enough to overturn the crane.

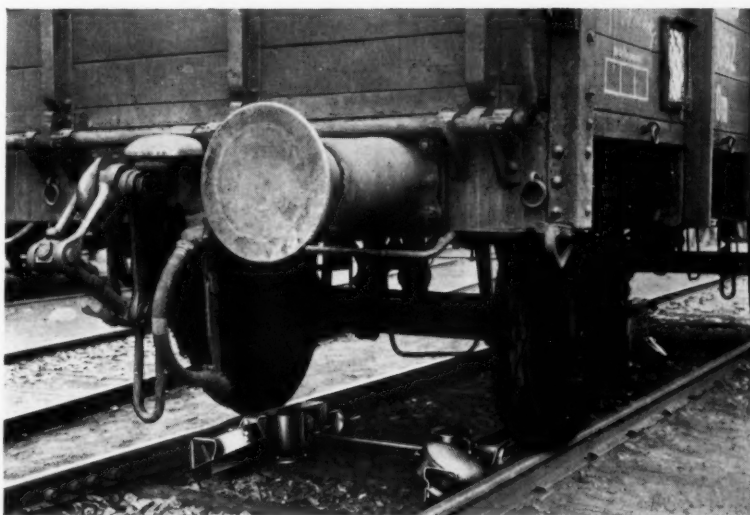
Doubling

Cranes are sometimes arranged for two rated full loads, generally 2 to 1. This is frequently given by doubling-up to the jib-head; incidentally this will not work with certain types of level-luffing gear. Hooking up to the jib-head is a nasty job, especially in dark and storm, also the heavy snatch block is a nuisance in the holds. The better, even if more expensive, arrangement is to obtain the change of purchase by change-gear in the cab, using a single, if heavier, rope throughout.

Portable Weighing Machine for Goods Wagons

THE light portable weighing apparatus illustrated is a German production, and besides being readily movable, gives the load on each wheel separately and so enables the distribution of the load in a wagon to be checked, as well as giving the total weight. The two weighing units are independent, though they are tied together by a spacer rod so that each fits exactly against the inside of the rail. They work on a pressure system, and the load is shown on a large circular indicator. The flange of the wheel mounts the apparatus, in which is incorporated an arrangement whereby after an empty wagon is weighed, the indicator dial can be set at zero, so that, as the wagon is loaded, the scale will indicate only the net weight of the load.

The apparatus is a product of the Vomag firm.



Vomag scale in position for weighing a goods wagon

MIXED TRAFFIC LOCOMOTIVES FOR EGYPT

A repeat order for 20 Caprotti valve engines, with A.C.F.I. feedwater heaters, has recently been executed by the North British Locomotive Co. Ltd., for the Egyptian State Railways



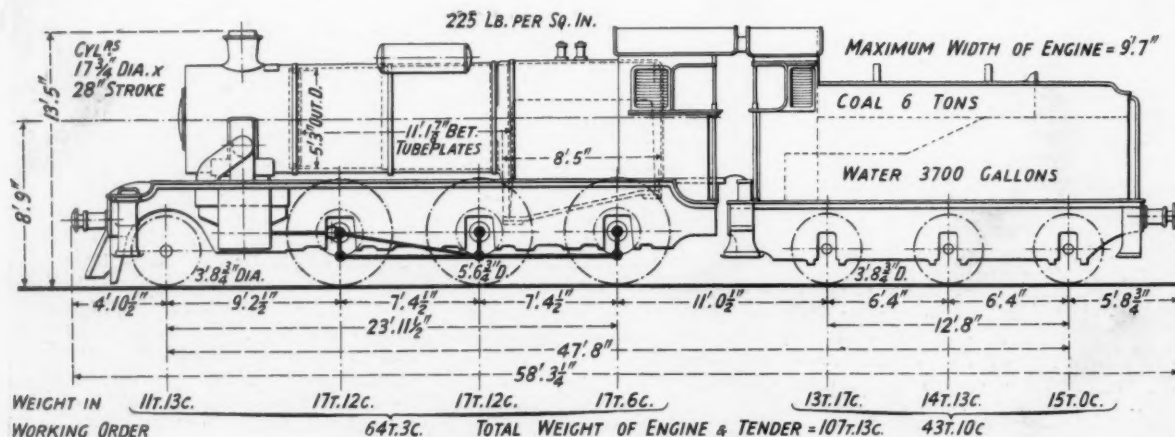
ON pages 297 and 298 of THE RAILWAY GAZETTE dated February 14, 1936, we published an article with illustrations dealing with some 2-6-0 type locomotives built for the Egyptian State Railways by the North British Locomotive Co. Ltd. The order was for 50 locomotives, 30 of which were fitted with piston valves and Walschaerts gear and 20 with Caprotti poppet valves.

More recently a further order was placed with the same builder for 20 additional locomotives equipped with Caprotti gear and A.C.F.I. feedwater heaters, and these engines have now been despatched to Egypt in complete working order. The locomotives are especially designed for working on lines restricted to light axle loads.

The frames are of steel plate stayed with cast steel stretchers; the axlebox guides are of horseshoe form fitted with wedges and liners. The bearing springs for the coupled wheels are underhung and attached to brackets

by links arranged in tension. The truck is of the swing bolster type, with three-pin links, with plate frames and overhung bearing springs.

A slight taper is given to the domeless boiler, which has an external diameter of 5 ft. 3 in. at the front end and 5 ft. 5½ in. outside diameter at the throat plate; between the tube plates the distance is 11 ft. 7½ in. The Belpaire firebox is 8 ft. 5 in. long outside by 3 ft. 11½ in. wide at the foundation ring and has an inner firebox of steel with welded joints. In the outer rows of water space the stays are of copper; the remainder are of Dunic steel. The crown plate is supported by Longstrand steel stays, screwed into the inner and outer plates; expansion stays are not employed. The large and small tubes are of steel, and the inlet to the main steam pipe is placed at the highest point of the boiler barrel above the firebox tubeplate. There are 24 elements in the superheater, which is of the Melesco multi-valve header type. The



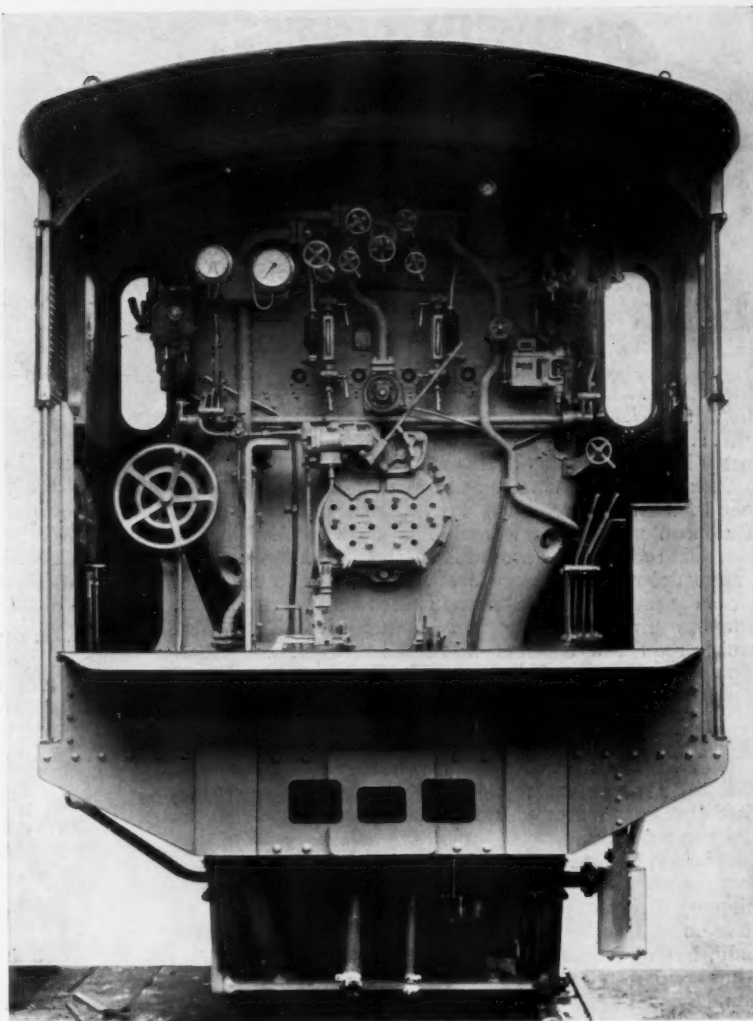
Dimensions and axle-loadings of the new batch of 2-6-0 mixed traffic engines for the Egyptian State Railways

firegrate is of the rocking type with drop plate at the front end. The following are the main particulars:—

Cylinders, diameter	17½ in.
stroke	28 in.
Wheels, coupled, diameter ..	5 ft. 6½ in.
Wheels, pony truck and tender ..	3 ft. 8½ in.
Wheelbase, coupled	14 ft. 9 in.
Total, engine	23 ft. 11½ in.
„ engine and tender	47 ft. 8 in.
Heating surfaces—	
Small tubes	889 sq. ft.
Large tubes	368 „
Firebox	149 „
Total	1,406 „
Superheater surface	290 „
Combined total	1,696 „
Grate area	25 sq. ft.
Boiler pressure	225 lb.
Weight in working order:	
Engine	64½ tons
Tender	43½ „
Total	107½ „
Adhesive weight	52½ tons
Tractive force at 85 per cent. boiler pressure 25,270 lb.	11·28 tons
Factor of adhesion	4·65

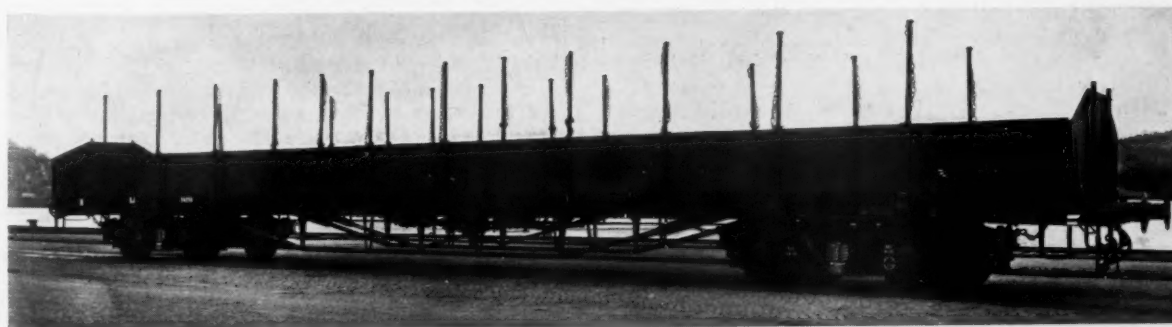
Each engine is equipped with a Friedmann live steam injector, Wakefield A.C. type sight feed lubricator, Klinger water gauges, Evrit blow-off cocks, Britimp metallic packing, Ross pop safety valves, Clyde soot blower, Ajax steam operated firedoor, Stone's electric lighting, sprayed Limpet asbestos insulation ½ in. thick covered with aluminium foil, and vacuum brake apparatus operated by Davies & Metcalfe ejector. Armstrong oilers are fitted to the pony truck axleboxes, and the coupled axleboxes are provided with Ajax grease lubrication. Grease nipples are fitted to the connecting and coupling rods, axlebox guides, spring gear, brake gear, &c.

The tender is of the six-wheeled type, with steel plate framing, and has a capacity of 3,700 gal. of water and 6 tons of coal. Vacuum and hand brakes are applied to all wheels. over the wheels. Timken roller bearing axleboxes are provided on all tenders. The bearing springs are of the laminated type and placed



Cab fittings in Egyptian State Railways mixed traffic 2-6-0 with Caprotti valve gear

Standard Wagons, Swedish State Railways



"Ob" open bogie wagon: capacity (distributed) 40 tonnes (39 tons 7 cwt.), tare weight 26·6 tonnes (26 tons 3 cwt.)

AUTOMATIC COUPLERS ON EUROPEAN ROLLING STOCK

A review of the problem of converting the standard gauge rolling stock and a suggested simple solution

By Dr.-Ing. R. ZEHNDER,

Director of Montreux-Oberland-Bernois Railway

RAILWAY administrations, the International Railway Union (U.I.C.), the International Bureau of Labour (B.I.T.), and railwaymen's associations, have, for years, seriously studied the problem of coupling devices for rolling stock. Recognising the importance of the question, the U.I.C. appointed a commission in 1925; the B.I.T. also formed, to speed up the investigation, a three-party international commission.

These commissions, composed of coupler experts, recognised from the start that it was impracticable to solve the European problem as it had been done in America by direct introduction of a central automatic combined buffer and coupler. This procedure was possible in America, since the pre-existing system was based on a central buffer, whereas European stock is equipped with side buffers which require a different frame construction altogether. Applying the central buffing coupler in Europe would entail complete rebuilding or heavily reinforcing the frames of all existing rolling stock, which it would be almost impossible to finance under prevailing conditions.

On the strength of a thorough examination, the U.I.C. Coupler Commission was led to declare in June, 1936, that "from an economic viewpoint, the replacement of the present screw coupler by an automatic central buffing coupler could not be justified." This conclusion had been foreseen by the Coupler Commissions from the beginning of their activities, and they very soon decided to develop a transitional arrangement to transmit traction only, buffing forces continuing to be taken by side buffers. Thus reinforcement or reconstruction of existing stock could be avoided. New vehicles would be built for the combined central buffing coupler but with side buffers to work in the transitional stage. When all the vehicles equipped with the automatic traction coupler have disappeared from traffic, through age or obsolescence, the side buffers will no longer be necessary and may be discarded, so as to obtain fully automatic central buffing and traction service. Numerous inventors and firms have already made serious studies of the problems, accompanied by extensive tests, undertaken with the active co-operation of railway administrations; and these have confirmed beyond any doubt that the procedure recommended by the U.I.C. Commission is sound.

Measures could, however, be immediately undertaken if the deviation from the condemned direct transition process were extended a little further, *i.e.*, if it were decided to introduce at once an automatic coupler for traction only, leaving aside for the moment the question of whether or not the buffing forces should also be taken centrally.

This suggestion appears to deserve serious consideration, since it must be admitted that traction couplers technically perfect and fit for any rational service requirements are already available. Moreover, this is the only possible way to solve the problem quickly under the restrictive influence of current finance.

Under this solution the automatic traction coupler head, relieved of buffing strains, would be smaller, lighter and cheaper; and the same would apply to other constituents.

Further, a decision as to the type of automatic central buffer coupler could be reserved, due advantage being taken of progress and development in construction and service requirements obtainable in the meantime.

Regulations now established for the automatic coupler require a lateral catching capacity of 200 mm. left and right from the centre line, and a breaking strength of 150 tons. No one can predict whether these figures will accommodate future requirements. It should be borne in mind that, according to technical conditions, the lateral buffer head must have at least 370 mm. dia. A minimum covering of 35 mm. being prescribed, the maximum allowable displacement results in $370 - 35 = 335$ mm. (Fig. 1). Certain types of carriages require buffer heads 450 mm.

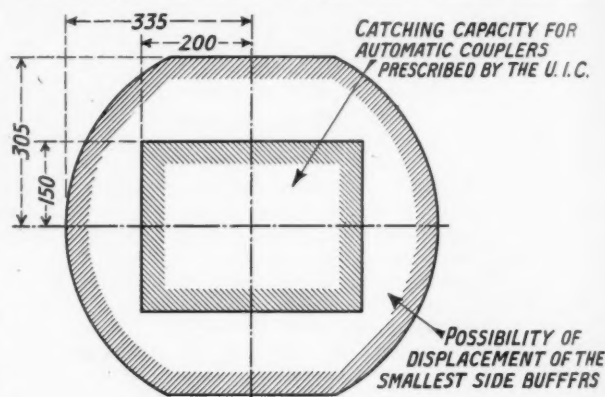


Fig. 1

in width, and even 500 mm. (long Pullman cars). Of course, on curves producing such important displacements, vehicles would not have to be coupled. In any case to limit the catching area of the automatic coupler to only $200 \times 2 = 400$ mm. is taking a risk of restraining the liberty for future requirements. Even now American railway practice demands couplers up to 300 tons breaking strength, and it may be said that the U.I.C. has been obliged to compromise in this fashion on strength and catching capacity in order to avoid too cumbersome dimensions, too great weight and, apart from some technical difficulties, too high a price also.

The principle of separating the traction coupler problem from that of an eventual automatic central buffer offers, from all points of view, some very noteworthy advantages.

Existing stock remains equipped with side buffers; in lieu of the present screw coupler, a light automatic traction coupler is attached to the existing hook; automatic coupling service may be initiated without any modification or reinforcement to present vehicles. New cars will continue to be built with side buffers and will have the light automatic traction couplers. The necessary steps may be taken to anticipate the possibility of future central buffing by giving the frame sufficient strength and room for accommodating the future gear.

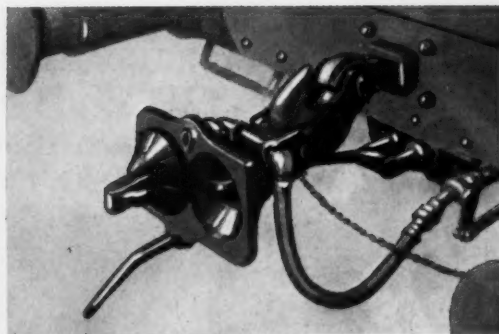


Fig. 2.—(Left): The Boirault traction coupler

Fig. 3.—(Above): One of the Scharfenberg traction couplers

When all old cars have disappeared, so that the remaining stock will have frames adequate for central buffing, probably 30-40 years hence, the opportunity will then arise of replacing simultaneously in all countries the light traction coupler by an appropriate central buffing coupler if at that moment this operation would be justified in the economical and financial point of view. Hitherto, the international coupler commissions had to consider the following main points:—

- (1) Construction of coupler head.
- (2) Construction of draft gear.
- (3) Equipping existing vehicles with the coupler and its draft gear.
- (4) Coupling brake and heating connections.
- (5) Influence of automatic coupler on the running of vehicles.
- (6) Height of centre line of coupler above rail.
- (7) Reinforcement and conversion of existing stock.
- (8) Influence of increased deadweight due to reinforcement, coupler, and accessories.
- (9) Financial problem.

Apart from the financial question, only points (1) and (4) above pertain to the coupler as such; all other questions relate to the central buffing coupler. Commissions may drop any but these two points, and conditions specified for the automatic coupler may be simplified in so far as it will become unnecessary for the design of traction coupler to be governed by the central buffing coupler and the draft gear. The problem is thus reduced to studying systems of traction couplers and submitting them to indispensable preliminary tests, an all-important stride having

thus been made towards the solution in a quick and single manner. The question appears to be already solved in regard to construction and service operation, traction couplers of the rigid type being available which fully answer all requirements. The Boirault coupler, for instance, officially tested and in use for years, is a traction coupler (Fig. 2). The Scharfenberg-Kupplung A.G. has evolved several types of traction couplers (Fig. 3 shows one of the Scharfenberg traction couplers). A community of several European automatic coupler specialists—Usines Emile Henricot S.A., Court-St.-Etienne (Belgium); Société des Appareils Boirault S.A., Paris; and Union Couplers Ltd., Luxemburg (Dipl.-Ing. L. Kürtösy, Berlin)—has recently perfected a new type of traction coupler called the Compact Coupler (Fig. 4). Fig. 5 shows the compact coupler head in out-of-service position, allowing to use the drawhook in the event that mixed service is not avoidable.

The procedure just outlined requires considerably smaller capital than any previous solution; in fact, only a fractional amount of what would be necessary for introducing the central buffing coupler. Serious calculations—and this point is to be stressed—show that the capital expenditure could be covered in a very few years by important economies in operating costs. These economies, continuing to accrue after the capital has been refunded, might be constituted as reserves for studies, tests, and expenses in view of the future introduction of the central buffing coupler.

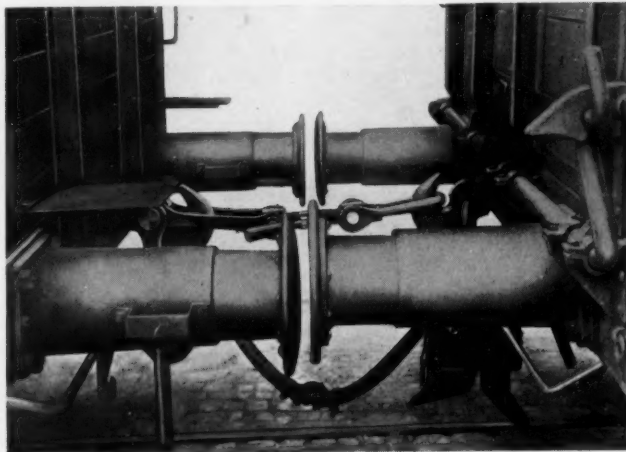
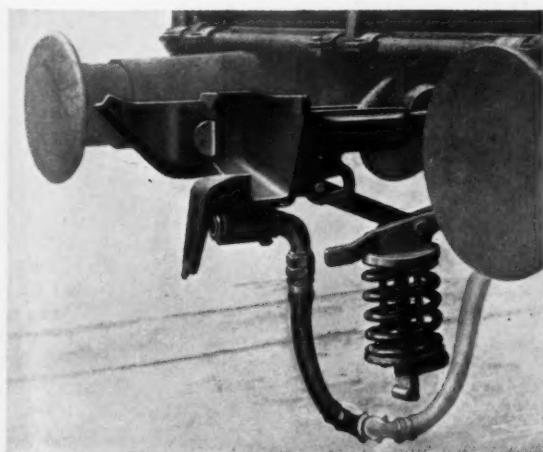
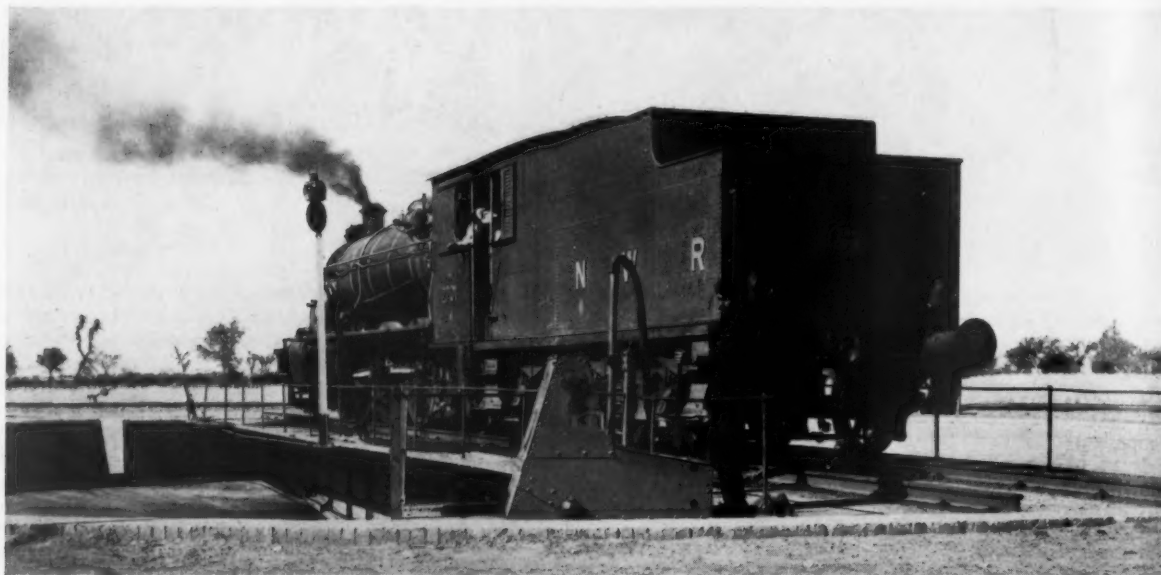


Fig. 4.—(Left): The compact coupler ready for coupling, and Fig. 5.—(right) out of service

VACUUM-WORKED 85-FT. TURNTABLE, NORTH WESTERN RAILWAY, INDIA

This, the second mechanically-operated turntable on the N.W.R., has a reserve vacuum reservoir for turning dead engines or the turntable "light"



Turning an XA2 Pacific locomotive on the vacuum power-operated turntable at Lalamusa

WITH reference to the article entitled "Equipment at a Modern Locomotive Running Depot in India," published in our issue of April 8 last, it is noteworthy that the North Western Railway brought into use its second 85-ft. mechanically operated locomotive turntable at Lalamusa in January of this year. Unlike the first one installed at Lahore, which is electrically worked, the Lalamusa table is operated by vacuum produced by the engine which is being turned, and is similar to the one installed at King's Cross, L.N.E.R., described and illustrated in *THE RAILWAY GAZETTE* of February 8, 1935. The new turntable was built by Cowans Sheldon & Co. Ltd., Carlisle, the patentee, and its installation at Lalamusa was dictated by the fact that that station is an important junction on the main line between Lahore, Rawalpindi, and Peshawar, where a change of types of engine is necessary. The engines hauling trains over the easily-graded section from Lahore, give way to others

suitable for the long and heavy grades onwards to Rawalpindi. About 30 engines are turned daily.

Under trial, an E.1 class Atlantic, such as usually works the Frontier Mail trains between Lahore and Lalamusa, was turned through 180 deg. in 1½ min. The engine was carrying 150 lb. of steam at the time, and a vacuum of 20 in., the latter falling to 16 in. while working the turntable. It has been found that on an average it takes an Indian shunter, an illiterate employee, working singlehanded, 5 min. to take an engine on to the table, couple up the vacuum power unit, turn the engine, disconnect the vacuum hose pipe, and drive the engine off the table again. Emergency hand turning gear is also fitted.

Six gas cylinders have been fitted to the turntable to provide a reserve vacuum for rotating the empty table from road to road, as there are three approach roads to it. This reserve is also available for turning dead engines.

British Railways

An extensive survey of British railway development has been contributed to the *Heaton Works Journal* by Mr. C. M. Jenkin Jones, Divisional General Manager, North Eastern Area, L.N.E.R. The author, indeed, even goes beyond the scope implied by the title of his article, "British Railways," for he has consulted up-to-date products of research into the origin of transport on permanent way in Babylonian times. Moreover, he traces the development of the steam locomotive from the trials of Cugnot's machine in Paris in 1771. Later in his article, the author outlines the somewhat haphazard manner in which our railway system developed in the first half of

the Nineteenth Century, and the reaction towards more systematic growth which succeeded the excesses of the Railway Mania period. With a swift review of some noteworthy locomotive designs—from Stirling singles and "Gladstones" to the modern L.N.E.R. Mikados and streamlined Pacifics—Mr. Jenkin Jones passes on to modern operating practice and policy in such matters as electrification and signalling. He gives a useful summary of Parliamentary legislation affecting railways and their relations with road transport, and concludes by reviewing the numerous improvements introduced by the companies in a period of considerable difficulties.

ROAD TRANSPORT SECTION

This section appears at four-weekly intervals

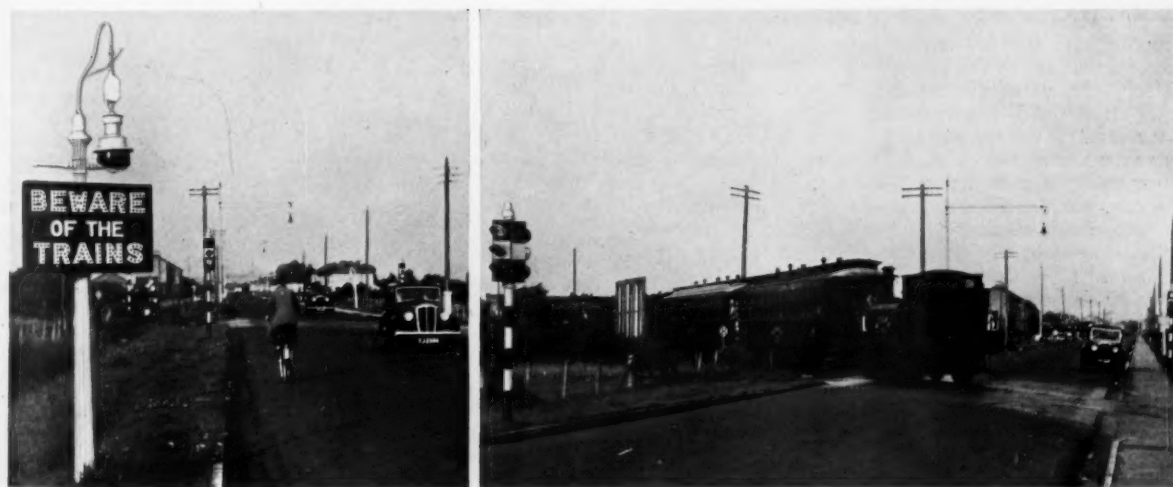
Mails by Bus

FOR some long time past the Post Office has used the services of regular motorbus operators for the limited carriage of mails, but it is only recently that the arrangement has become accepted as anything but an exceptional facility. In quite a number of cases, however, local representatives of the Post Office have now reached agreement with certain provincial operators to use their regular service buses for the carriage of mail, and the arrangements are of two kinds: (1) The carriage of loaded mailbags containing collected letters from rural post offices to more important centres; and (2) the provision on buses of letter boxes in which letters may be posted in the ordinary way. In both cases the facility applies only to the collection of letters and not to their delivery. The charge for the carriage of mail bags is usually based on the weight of the bags to be carried and the frequency of the service required, and therefore before any contract is signed, the postal authorities give an indication of the average expected weight of the mail and the frequency of the service desired so that charges may be assessed accordingly. In at least one case the operator charges a rate identical with his standard flat parcels rate, making no variation according to the distance conveyed. Most operators are prepared to accept the Post Office figure of the average weight of the bag and ignore minor variations, although these might on occasion be large enough to transfer the bag from one rates category to another. In most cases the matter is not one of great importance as it is usual for the Post Office to limit the weight of one bag to 56 lb., so that weights above this figure involve the use of two bags. These mailbags are locked to a rail on the bus by a servant of the Post Office and the padlocks then sealed. The bag is not touched again until it reaches its destination and is then unlocked by another Post Office representative. Similar precautions are taken in the handling of mobile post boxes,

which are locked to iron brackets on the bus; the boxes themselves are usually constructed by the postal authorities to a specification laid down by the operator. With these boxes it is not easy to fix the amount of the charge for the service afforded but we understand from a recent issue of *The Leyland Journal* that between £5 and £8 a year is the approximate charge of operators to the Post Office.

Traffic Lights at Level Crossings

COLONEL A. H. L. MOUNT, in his annual report for 1937, mentions that consideration is being given to applying road traffic lights at certain heavily trafficked level crossings, but up to the present only a few installations of such signals have been made, although we believe they have often been suggested. An example of traffic lights controlling both road vehicles and trains is now in use on the Weston, Clevedon & Portishead Light Railway, normally showing "stop" to an approaching train and working on the traffic registering principle. This is a special case, where the railway is regarded practically as another road along which traffic is infrequent. To adapt traffic lights to crossings, whether there are gates or not, is far from being the simple problem it might seem at first sight, as the conditions are materially different from those obtaining at road intersections where, we understand, traffic density is one of the chief factors on which the use of light signals is recommended by the authorities. Their employment is not thought advisable where their real function would be required but seldom, as in such circumstances there is risk of them not receiving the attention they deserve, while to make them operate merely to make a break in the aspects for this purpose only, without any real traffic necessity, offers temptation to persons to ignore them when they think they may safely



Level crossing at Worle of the Weston, Clevedon & Portishead Light Railway and the Bristol-Weston main road. The ordinary road type of colour-light signals which control the crossing normally show the "go" aspect for road vehicles, and change to "stop" on the approach of a train

do so unnoticed. Co-ordinating the lights with the principles followed in controlling rail traffic at crossings also appears to present difficulties not readily solved.

Transport in Honduras

ROAD transport facilities in the interior of Honduras are inadequate to the needs of the country, according to the Report on Economic and Commercial Conditions in the Republic of Honduras, issued by the Department of Overseas Trade, and published by His Majesty's Stationery Office (price 9d. net). Progress in roadmaking is but slow and travel and transport is still dependent largely on the mule and oxcart. The total mileage of roads in the Republic is slightly more than 800 km., of which it is estimated that 500 km. are passable throughout the year, and the remainder (being unsurfaced) are fit for use only during the dry season. The two principal highways are the Carretera del Sur from San Lorenzo on the Pacific coast to Tegucigalpa, 84 miles; and the Carretera del Norte from Tegucigalpa to Lake Yojoa, 154 miles. Transport from Lake Yojoa (20 miles across) is continued by road to Potrerillos, the head of the railway to Puerto Cortes. Neither of these two main arteries of travel is in a good state of repair and, although regularly used by heavy motor transport and passenger bus services, it is only with extreme difficulty that they can be traversed by private cars, particularly during the rainy season. Owing no doubt to this lack of good roads, air services, both passenger and freight, have been developed considerably during the last few years. Besides the international communications maintained by Pan American Airways Inc., the local company—Transportes Aereos Centro-Americanos (TACA)—operates a fleet of about thirty planes, with daily services covering some 2,000 route miles. There are over 50 landing fields in the Republic; and 12,079 passengers and 600,000 lb. of mail and freight were carried during 1937.

The Indian Motor Vehicles Bill

IT is difficult to follow the reasoning behind the opinion expressed by the Federation of Indian Chambers of Commerce and Industry that the Motor Vehicles Bill has been conceived mainly with the object of stultifying motor transport activity so as to create an exclusive monopoly for the railways. Equally perplexing is the statement of the federation that its view is strengthened by the incorporation in the provisions of the Bill of many of the recommendations of the Wedgwood Railway Inquiry Committee. In submitting to the Government of India its views on the Bill, the committee of the federation refers to the great development in Europe and America of road motor transport, which affords special facilities to passenger traffic, and in the methods of delivery and handling of goods. While admitting that it will take years before the Indian motor transport services make a near approach to the conditions obtaining abroad even if they are left uncontrolled by Government, the committee is unnecessarily pessimistic in assuming that the co-ordination proposed under the Bill may lead to the extinction of motor transport activity. Quoting the words of Mr. Winston Churchill as Chancellor of the Exchequer in 1928, that it was the duty of the State to hold the even balance between road and rail, the committee asks whether the provisions of the Bill and particularly Chapter IV thereof, fulfil this duty. Can the Government claim, they ask, that its object is to establish by this Bill a fair basis for the equalisation of competition conditions between the two forms of transport, leaving only the natural and inevitable inequalities to continue? This, we would emphasise, is the Indian viewpoint, and, in order to refute its argument,

it is only necessary to point out that, in introducing the Bill in the Budget session of the Central Assembly, the Member for Communications definitely stated that the measures of control provided for were in the public interest and would largely be exercised by local authorities. On the whole, the general proposal to co-ordinate the law relating to transport facilities throughout India seems to be receiving public support, and the aim of the Bill to deal with the problem fairly from both the all-India and Provincial points of view certainly merits high praise. So much for preliminary external reactions to the proposed measure, the salient features of which are as follow. Chapter I deals with definitions of technical terms, and compulsory third party insurance, which, however, is not to be enforced until five years have elapsed after the Act comes into force, a deplorable concession to the less reputable road interests. Chapter II sets out driving licence conditions and the rights of the Provincial Governments in the matter. Chapter III is concerned with registration of vehicles, and control of motor transport, classification of vehicles, co-ordination, restriction of services—passenger and goods—then follow. Rates, however, are not regulated and no attempt is made in the draft Bill to arrive at any relationship between railway rates and road charges.

Publications Received

The Motor Transport Year-Book and Directory, 1937-38 (Garcke). Edited by Frederick C. Garrett. London: Electrical Press Limited, Fisher Street, Southampton Row, W.C.1. 8½ in. × 5½ in. × 2¼ in. 798 pp. Price 30s. net.—With the present edition this essential reference work of the commercial motor transport industry reaches Volume 22, and it is no exaggeration to say that every volume has shown some improvement on its immediate predecessor. "The Motor Transport Year-Book and Directory" was founded in 1916 to meet the need for a financial and commercial record of the industry, and to supply for motor transport a companion volume to "Garcke's Manual of Electrical Undertakings." It still retains the distinction of being the only comprehensive publication of its kind, and at the present time the principal contents (namely financial, statistical, and descriptive information) cover nearly 4,000 road transport, aircraft, and allied undertakings. The directory section contains the names and addresses of over 5,000 directors and officials engaged in the various businesses.

A familiar feature which again is included is the statistical survey of progress during the past year. In this the principal total figures are shown in relation to similar figures for the last nine or ten years, and therefore provide the basis for comparisons of the changes in conditions both before and after the Acts of 1930 and 1933. An interesting feature of the table giving particulars of commercial goods vehicles is that for the past three years the general heading of "internal combustion" has been sub-divided into petrol and heavy oil. The total of commercial goods vehicles for the year ended September 30, 1937, is shown as 463,285—the highest so far—of which petrol accounted for 451,612; diesel 7,103; electric 3,313 (compared with 603 in 1926); and steam 1,245 (compared with 9,186 in 1926). We wonder what is the motive power of the remaining 12 in the total. A new feature this year is a section entitled "Road Transport Organization," which is perhaps a slightly misleading title for a valuable section containing an encyclopædic arrangement of law and other data relating to licensing, taxation, construction, equipment, maintenance, and use on the roads, of motor vehicles for public passenger and goods transport. This summary is excellent for rapid reference and in every case the appropriate Act or Regulation is cited. As with previous volumes the latest available accounts have been included and the whole of the data verified at the latest possible date before closing for press, and the result once more is the production of a volume which is invaluable to all connected with motor transport in Great Britain.

Catering Facilities for London Busmen

A brief review of the recent activities of the catering section under the management of the Chief Welfare Officer, London Transport

THE youngest department of the London Transport organisation is that of the Chief Welfare Officer, which was established in February, 1937, to co-ordinate the board's welfare activities and to initiate schemes to improve canteen, institute, lavatory, and recreation facilities. The welfare activities of the London Passenger Transport Board have increased very considerably since the board was established, just five years ago, and these have been referred to

in our columns on a number of occasions. For example, in our issue of August 27, 1937, we recorded the establishment of a fully-equipped canteen at the Northfleet district headquarters and garage—the first in the Country Services Department to be so provided—and then stated that the total of canteens would pass the hundred mark during 1938. We now learn that the present total is already 103, as compared with 52 when London Transport came into being. Moreover, 23 canteens have been wholly or partly reconstructed and fitted with the most modern

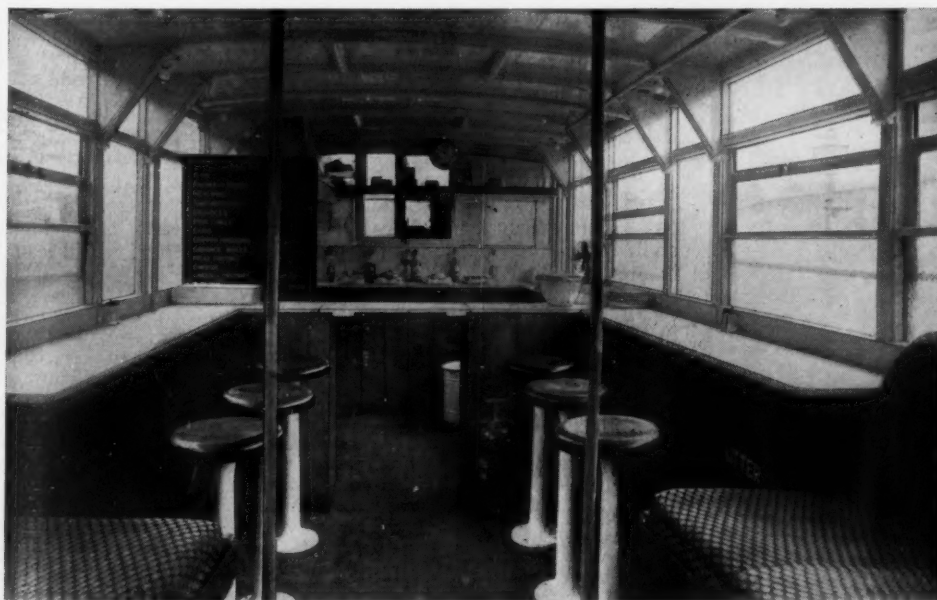


A hut canteen for busmen at Putney Common, incorporating in the same structure a shelter for passengers and office for a timekeeper

kitchen equipment. The largest and one of the most interesting canteens is that at the board's bus works off the Chiswick High Road. Here the canteen and servery have been so designed that a girl can serve eight lunches a minute as against one lunch a minute previously. The canteen at the board's railway works at Acton is being reconstructed. In addition to the canteens, there are messrooms for the staff at every garage, station, depot, and works. They include modern equipment with which employees may prepare or heat their own food. The

Welfare Department is responsible for the maintenance, equipment, and cleanliness of these messrooms—which number 560—and recently twelve rooms have been reconstructed.

The provision of facilities at terminal and relief points on the roads is a more difficult problem. For the Central Buses alone there are 564 such points. The matter has been tackled systematically and an analysis has been made of the facilities that exist on 140 bus routes; the analysis of the remaining bus routes is proceeding at the rate of about six a week. As a result, at 125 points arrangements have been made with



Interior of the mobile canteen viewed from the back platform. An illustration of one of these canteens in use was published on page 888 of our issue of November 19, 1937

local authorities or the proprietors of coffee shops to improve their facilities, and in 156 cases negotiations are proceeding.

Where no adequate refreshment facilities were available, the needs of the staff have been catered for by the provision of twelve mobile canteens, one hut canteen, and two shop canteens, in addition to many other canteens that serve the road staff. The mobile canteens are arranged in old-type buses converted for the purpose, and the interior of one was illustrated on page 888 of our issue of November 19 last. In the report of the Court of Inquiry concerning the Central Bus strike of May, 1937, the Court expressed the view that "where suitable provision of accommodation cannot otherwise be made, we think that the co-operation of the local authorities concerned should be given to secure the appointment of terminals at which refreshment facilities are available." London Transport stated that it wished to enlist the collaboration of the local authorities in dealing with this problem, and in a Bill now before the House of Lords the board seeks the co-operation of borough councils in allowing the erection of hut canteens on suitable sites to cater for staff requirements on the road.

With staff canteens the policy of the board is to provide the premises and install all heavy equipment, and to pay

the cost of administration and other expenses. The modern methods of equipment and furnishing which are adopted, and various features regarding the operation of the canteens, were described in an illustrated article which we published on January 14 of the present year. Care is taken to ensure that the food is of the highest quality and that the variety and the methods of preparation are such that employees are encouraged to eat wisely as well as adequately. Refrigerators are provided at all the canteens and there is a cold storage plant at the central stores. Meat and vegetables are bought daily from Smithfield and Covent Garden markets and are delivered to the canteens the same day. A qualified analytical chemist is provided by the board to test all food supplies and to advise on dietetic values. The size of the work may be gauged from the following quantities of materials used every week in the canteens: 6 bullocks, 35 sheep, 15 pigs, 11½ tons of packet tea, 163,000 cups of tea, 12,000 eggs, 120 cwt. of potatoes, 3,200 gal. of milk, 3,300 two-lb. loaves, and 440,000 cigarettes.

The programme for the next two years includes the provision of 13 additional canteens at depots, 14 new canteens on the road, the reconstruction of 6 canteens, the renovation of 42 messrooms, and the improvement of refreshment and lavatory facilities at 60 points on the road.

Motorcar Vans in Hungary

Vehicles equipped with folding ramps so that cars can be driven on board from rail level if necessary

MOTORISTS in Hungary, as in other countries, have been encouraged to take their cars with them by train when they go on holiday, using them for touring from whatever resort they select as their centre. To make the idea attractive it was necessary to provide for the easy loading and unloading of cars on rail vehicles at any station, which requirement has been met by the design of the specially-fitted vans we illustrate. As these vans carry their own collapsible ramp, cars can be driven on and off at any point, regardless of whether there is a platform or loading dock adjacent to the wagon. As local conditions may make it necessary for a car to enter or leave either by the side or end doors, a turntable inside the van allows a vehicle to be manoeuvred after loading, ready to leave by whichever exit is convenient.

The special vans have been designed for the railways by Baron André de Puchner, Technical Adviser to the State Railways administration. They are based generally on ordinary luggage vans, but incorporate special modifications for the loading and stowage of motorcars. One end is provided with a simple hinged ramp which can rest on a platform and form a bridge at stations provided with platforms for end loading. The other end of the wagon has a similar ramp, but provided with two hinged extension pieces which, with the ramp, form an inclined plane 21 ft. long up which cars can be driven from rail level into the van where no platform is available. A small crane mounted in the van is provided to help in manipulating the extensions, which, when not in use, lie folded behind the ramp (itself forming an end door of the vehicle). The turntable inside the van is available to hold a car during transit when only one is carried, but if there are two (the most that can be carried) one must be driven up to the free end of the van.

The interior of the van is finished on the same lines as a luggage van, with the addition of a washstand at one

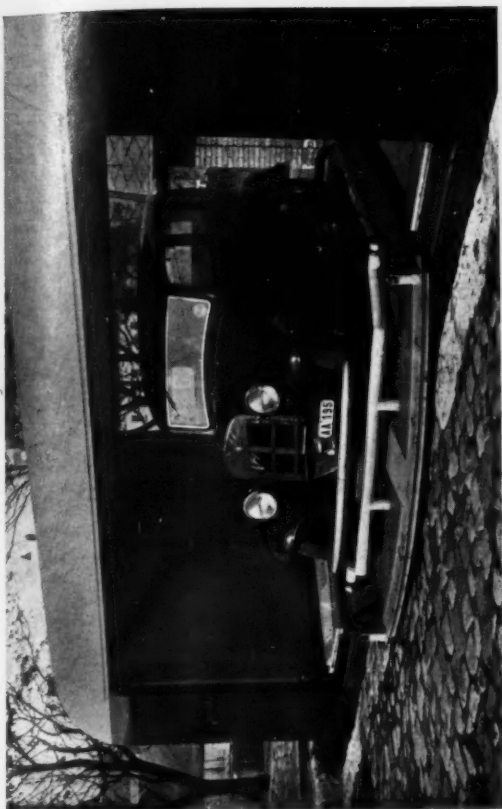
end provided with water from a tank under the roof. The car has electric lights, both fixed in the ceiling and on extension cords to permit a mechanic to work on the car during travel; steam heating is provided for the comfort of the chauffeur as well as to prevent the car from freezing.

The two motorcars which the van accommodates are limited to represent a total load of 7 tons, and a maximum length of 20 ft. each. Special precautions have been taken against fire, all the ventilators being provided with a Davy wire screen to avoid the danger of fumes being lighted by sparks from the locomotive, and the doors and windows being closed with baffles to prevent any possible entry of sparks. All the wood interior parts are carefully fireproofed with a fireproof paint. This type of van permits the State Railways to accept cars for transport between any two stations, irrespective of loading facilities, and it is expected that its introduction will lead to a development of railway travel by car owners.

TRAMWAY AND TROLLEYBUS EQUIPMENT—We have received from British Insulated Cables Limited, Prescott, Lancs, a selection of leaflets describing equipment for tramway and trolleybus overhead contact lines. These embrace various types of single and double hangers for use in the open, under bridges, and in car-sheds; also splicing ears with set-screws or clinch fixing, and clamps for joining conductors of different metals either end-on or with a tee-joint as required for connecting feeders with main lines. Two leaflets describe current collectors for slow-moving vehicles such as gantry cranes and conveyors. An interesting accessory is the traffic light contactor for trams, which can be fixed to line fittings for operation either by trolley head or bow collectors. Connected to traffic signals, it allows trams to actuate the lights on approach to a road junction just as is done by the wheels of other vehicles by passing over the road contact strips.



Van in end-loading dock with ramp lowered to admit car, seen entering the vehicle under its own power



The turntable inside the van, by means of which cars can be swung into position to leave by the wide side doors

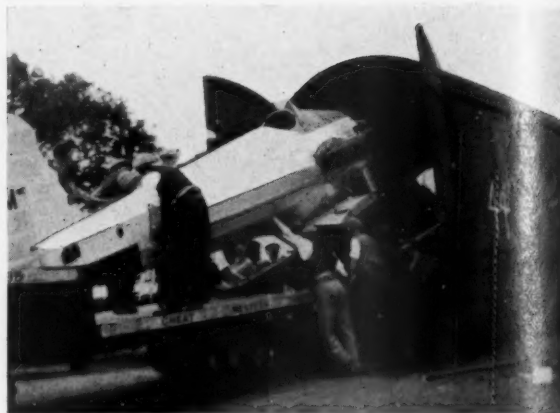


Loading a car by means of the extensible ramp provided for use where no platform is available



Folding the extension pieces of the ramp after use by means of the small crane provided inside the van

MOTORCAR VANS ON HUNGARIAN STATE RAILWAYS



Left: Man-handling a fuselage from van. Trailer in foreground waiting to back under load. Right: Seating a fuselage on Tasker drop-frame trailer



Left: Complete frame loaded on trailer, note tail loaded on higher platform. Right: Lashing the main planes to side of load



Load completed and secured

TRANSPORTING AN R.A.F. DEPOT—(See article opposite)

Transporting an R.A.F. Depot

Transferring technical equipment and aircraft from Halton Camp, Buckinghamshire, by rail, to Shropshire, with road haulage between arrival station and new camp site

(See illustrations opposite)

THE Great Western Railway has been involved in many interesting tasks related to the Government re-armament programme, not the least of which was its recent association with the London & North Eastern Company in the transfer of a large quantity of Royal Air Force equipment from the R.A.F. Technical Training School at Halton to the new instructional centre now in its embryo stage at Cosford, Albrighton, Shropshire. In passing it should be mentioned that the company has, during the past six months, successfully dealt with and delivered to Albrighton over 15,000 tons of constructional materials, which were arriving at the same time as the technical equipment. This constituted a problem calling for no little organisation at a rural station normally serving an agricultural community.

The Air Ministry stipulated that the movement of equipment from Halton, comprising 173 varieties of articles ranging from thimbles to aeroplanes, should be completed between July 18 and 29, and the company was required to deliver the whole to the new camp at a point two miles from the station. The problem can be better realised by examining a few of the items appearing in the inventory:—

Aeroplanes	22	Wooden seat tops	50
Work benches (½-ton each)	179	Fitters vises	800
Demonstration boards ..	12	Smaller drillers	93
Tool storage racks	74	Ladders	31
Combination desks	78	Trestles	72
Workshop desks	138	Four wheel bogies	5
Various stands	33	Brooms	285
Jigs	40	Easels	106
Tool boxes and kits	1,333	Blackboards	104
Drip trays	144	Shovels	17
Metal blocks (tons)	10	Watering cans	22

The traffic, which was loaded in the R.A.F. private siding at Halton, passed in five special goods trains, the first of which exchanged to the G.W.R. at Banbury at 9.45 p.m. on July 18, reaching Albrighton 4 hr. later.

A staff of 7 loaders, with 7 motor drivers, 6 Morris A.L. units and 12 trailers, and one 6/8-ton rigid, were detailed to the task, and work began at 7.15 a.m. on July 19. The principle followed was for loaded trailers to be left

at the site for unloading by the Air Force staff, and by this means the units were kept moving almost continuously between the station and camp, and the success of the organisation can be judged by the fact that upon the first day the special train was disposed of by 3.30 p.m., concurrently with meeting all the requirements of the contractor regarding delivery of materials.

On successive days the special trains of varying composition were disposed of by 12.35 p.m., 2.0 p.m., 3.0 p.m., and 4.30 p.m.; every train load was delivered on the day of arrival. On the last day the work consisted principally of delivery of 18 aeroplanes, comprising fuselage, main-planes, rudders, tail-planes, and so on, requiring exceptional treatment. Concurrently with the passage of the Halton traffic during these four days, the company was also called upon to deliver equipment arriving from other Air Force depots, as well as the contractors' materials, already referred to.

The delivery of the aeroplanes demonstrated the adaptability of the company's Tasker drop-frame A.L. trailers (Dyak W.). The machines included six different types, and with the tail mounted and lashed to the top platform, the undercarriage secured towards the rear of the lower platform, the tail-planes, &c., placed on the floor beneath the fuselage, and the main-planes roped on either side of the air frames, very compact and safe loads were made. Three unloading points were used for this traffic, the station carriage dock, the yard level crossing, and the main siding. The engines had been removed and the lighter machines were man-handled entirely from van to road vehicle; the heavier types were brought to the mouth of the special vans and lifted by mobile crane from the engine plate, it being a simple matter to control the tail and to load expeditiously.

When it is considered that the greater part of the traffic was carried loose in trucks and vans, the only exception in the examples cited earlier being the 800 vices, which were conveyed in containers, the movement provides a further indication of the capacity of the G.W.R. to cater for the unusual in a manner which has been described by the Air Ministry officials as "amazingly efficient."

S. R. AGER



Seven out of a batch of 41 Karrier Bantam two-tonners recently ordered by the Air Ministry from Karrier Motors Limited. This was a repeat order, bringing the R.A.F. fleet of these vehicles up to 68



The Victorian Age re-created at King's Cross station, L.N.E.R.: A group in the costumes of 50 years ago inspecting ex-G.N.R. 8-ft. single No. 1, before its departure last Wednesday on a half-day excursion to Cambridge, heading a train of "period" coaches

(See editorial note on page 355)

RAILWAY NEWS SECTION

PERSONAL

Colonel Sir J. C. Ward, K.B.E., C.M.G., C.I.E., D.S.O., Director-General, Iraq State Railways, is on leave in England and has been visiting London.

Mr. D. L. Riddle has been appointed Senior Accountant of the Nigerian Government Railway.

From *The London Gazette* of August 19: Regular Army Supplementary Reserve of Officers, Royal Engineers, Transportation: Sec. Lt. E. J. M. Matheson, B.Sc. (Eng.), A.M.Inst.C.E., to be Lieutenant (July 31).

Mr. H. C. Young, Assistant Purchasing Agent, Delaware & Hudson Railroad, has been appointed Acting Purchasing Agent in charge of the Purchasing Department, in place of Mr. H. K. T. Sherwood, who has resigned.

MEXICAN NATIONAL RAILWAYS APPOINTMENTS

The following appointments have been made to the Council of Administration, the formation of which was reported in our issue of June 10:—

Señores R. P. Garza; R. Nevares, and F. V. Martinez. Señor Rafael S. Martinez has resigned.

The management executive staff, under the General Manager, Señor Salvador J. Romero, is now made up of the following:—

Señores M. Ceballos, Chief Engineer; J. M. Campos, Chief Mechanical Engineer; J. Lopez Alcar, Legal Department; Dr. A. M. Lopez, Medical Department; Señores I. J. Terroba, Accountant; J. R. Gamez, Audit Accountant; G. L. Espino, Assistant Accountant; and J. C. Garcia, C. Kramer, and P. M. Hernandez, Divisional Superintendents.

INDIAN RAILWAY STAFF CHANGES

Mr. R. E. Marriott has been confirmed as Chief Engineer, E.I.R., with back effect from March 8.

Mr. Rang Bihari Lal, on return from leave, has been posted as Deputy Controller of Railway Accounts, as from July 16.

Mr. E. H. N. Lowther has been appointed to officiate as Divisional Superintendent, E.I.R., from July 7.

Mr. L. E. Brock, Divisional Superintendent, N.W.R., has been granted two months' leave as from July 26.

Rai Bahadur Purushottam Lal Dhawan, M.A., M.I.E. (Ind.), whose appointment as a Member of the Indian Pacific Locomotive Committee was recorded in our issue of July 29, was born on October 1, 1883. He graduated as M.A. (Physics), at the Government College, Lahore, in 1902, winning the MacLagan gold medal. He joined the



Rai Bahadur P. L. Dhawan

Appointed a Member of the Indian Pacific Locomotive Committee

Thomason Civil Engineering College, Roorkee, in 1903, and passed out first in 1906, winning the Council of India prize of Rs. 1,000. After one year's practical training on the construction of the Gauhati Extension, Eastern Bengal Railway, he was then appointed as Assistant Engineer on the same railway on October 4, 1907. He transferred to the Oudh & Rohilkund Railway (now amalgamated with the E.I.R.) in 1909, and worked for three years on the construction of the Balamau-Sitapur and Akbarpur-Tanda Railways, and for four years on open line maintenance. He was promoted to Executive Engineer in 1915, and transferred to the North-Western Railway in 1916, where he worked on the open line as Sub-Divisional Officer

and Executive Engineer. Rai Bahadur Dhawan was engaged as Professor of Civil Engineering at the Thomason College, Roorkee, in 1922-1923, and on his return was posted to the Headquarters Office of the N.W.R. as Assistant Deputy Agent (Works) for one year, and for a short time as Personal Assistant to the Chief Engineer. On

the introduction of the divisional system on the N.W.R. in 1924, he was appointed Divisional Engineer, Lahore. From 1927 he was Deputy Chief Engineer in charge of the Projects and Designs Section of the N.W.R. It was during this period that "X" class engines arrived on the railway, and he was responsible for the strengthening of bridges and remodeling of station yards on the whole railway to make them fit for taking the heavier axle loads of "XC" engines. In November, 1931, Rai Bahadur Dhawan was posted as Divisional Superintendent (Senior), Multan, and held that post until July, 1934, when he was posted for four months as Senior Government Inspector of Railways, Bombay Circle. On April 1, 1935, he was appointed Chief Engineer, N.W.R., but was soon after selected as a Member of the Federal Public Service Commission, which post he still holds. He is also a member of the Punjab Engineering Congress and the Institution of Engineers (India), and has served on the executive councils of both these bodies.

Mr. C. Johnstone, whose appointment as Assistant to the Chief Commercial Manager (Passenger), Euston, L.M.S.R., was recorded in our issue of August 12, joined the service as a junior clerk with the former Caledonian Railway at Aberdeen (Goods) in 1901. He was subsequently transferred to the District Traffic Superintendent's Office there, and thence in 1906 to the Rates, Fares, and Excursion Department in the Office of the Superintendent of the Line. In 1912 he was appointed Deputy to Mr. Crozier, who was then in charge of that department, and when the latter was appointed Assistant Superintendent of the Line, Mr. Johnstone succeeded him as Clerk in Charge, in which capacity he represented the Caledonian Company in all matters pertaining to the commercial side of the Superintendent's Department at the Railway Clearing House. When the amalgamation took place in 1923, Mr. Johnstone became Chief

Clerk to the Divisional Passenger Commercial Superintendent for Scotland, and in January, 1924, was appointed Railway Clearing House representative for the group and attached to the General Superintendent (Passenger Commercial), Derby. From April, 1928, until June, 1929, he was acting General Assistant to the General Superintendent (Passenger Commercial), and was appointed Rates and Charges Assistant to the General Superintendent (Passenger Commercial), in July of that year. Mr. Johnstone was Chairman of the Passenger Train Rates and Fares Conference at the Railway Clearing House in 1920, Chairman of the Superintendents' Representatives, and

Road Transport Assistant, L.M.S.R., in that year. On creation of the Chief Commercial Manager's Department in October, 1932, he was appointed Assistant (General) responsible for Road Transport, Air Transport, Trade Advertising, Commercial Research and General Sections of the department. Mr. Bradbury was made Assistant (Passenger) to the Chief Commercial Manager in July, 1935. He has served on the boards of Hebble Motor Services Limited, Yorkshire W.D. Transport Co. Ltd., and the Yorkshire Traction Company, and on all the joint omnibus committees with municipalities in which the L.M.S.R. is interested. Mr. Bradbury has been

Manager's Office concerned. Here his connection with press work began, for the then Goods Manager, Sir Charles Owens, had occasion to speak at many public and staff functions, and he attached Mr. Milton to his personal staff to attend, among other duties, conferences and similar gatherings, and report his speeches to the railway press. The first report he prepared was for the *South Western Gazette*, now the *Southern Railway Magazine*, of which Mr. Milton later became a proprietor, and has been the Editor for over 20 years. In 1898, when Sir Charles Owens succeeded Sir Charles Scotter as General Manager, Mr. Milton accompanied him to the



Mr. C. Johnstone

Appointed Assistant to the Chief Commercial Manager (Passenger), Euston, L.M.S.R.



Mr. W. P. Bradbury, O.B.E.

Appointed Acting Assistant Chief Commercial Manager (Passenger), Euston, L.M.S.R.



Mr. F. V. Milton

Superintendent of Advertising, Southern Railway, 1930-38

sub-committees of that body in 1922 and Chairman of the latter in the year 1927, as well as of the Excursion Representatives.

Mr. W. P. Bradbury, O.B.E., M.Inst.T., whose appointment as Acting Assistant Chief Commercial Manager (Passenger) Euston, L.M.S.R., was recorded in our issue of August 12, entered the former London & North-Western Railway in the District Superintendent's Office at Euston in 1905, and transferred to the Department of the Superintendent of the Line in 1910. He served with the forces in France from January, 1915, to September, 1919, and retired with the rank of Major. Shortly afterwards Mr. Bradbury was appointed Chief Staff Clerk, Superintendent of the Line's Department, L.N.W.R. On amalgamation of the railways in 1923, he was appointed Chief Clerk to the General Superintendent (Passenger Commercial), L.M.S.R., subsequently becoming Assistant. Mr. Bradbury had a great deal to do with the detailed work connected with the presentation of the railway companies' case for road powers in 1928, and was appointed

Chairman of all these committees. He was intimately connected with all the arrangements and negotiations concerning the L.M.S.R. Company's interest in air services, and served on the Railway Air Services Joint Committee, of which he was twice Chairman. He represented the L.M.S.R. on the boards of Scottish Airways Limited, and Western Isles Airways Limited, and was the first Chairman of Isle of Man Air Services on the amalgamation of the air services serving the Isle of Man. Mr. Bradbury relinquished his road and air transport interests early this year to take over additional responsibility in connection with the railway passenger work. He is a former Member of Council of the Institute of Transport.

Mr. F. V. Milton, who is retiring from the position of Superintendent of Advertising, Southern Railway, on August 31, joined the Traffic Department of the former London & South Western Railway in August, 1888, and has thus completed 50 years' service. In 1893 he was transferred to the Traffic Superintendent's Office, Waterloo, and thence in 1894 to the Goods

General Manager's Office, to which he has been attached for 40 years. At that time every department conducted its own advertising, but when in 1912 Sir Herbert Walker was appointed General Manager he created a Publicity Department to deal with the whole of the company's advertising, and Mr. Milton was placed in charge. In addition the business included ticket agencies, residential developments, sites for factories, and so on. A section to deal with Continental traffic matters was added in 1914. Mr. Milton was also appointed Editor of "Hints for Holidays" in 1916 and of the *South Western Magazine* in 1918. During the war, at Sir Herbert Walker's suggestion, Mr. Milton conducted a very successful sugar beet growing campaign in the South and South West of England, arranging lectures on sugar beet cultivation, supplying farmers with seed, and purchasing the resultant crops for sugar manufacture. In conjunction with the Ministry of Agriculture he also assisted in a campaign for increasing food supply by the establishment of egg and poultry depôts in country areas, and marketing the produce. After

the war, when the International Railway Conference was formed to restore through connections and facilities between what had been enemy countries, Mr. Milton was appointed one of the five British representatives and attended conferences at various European capitals. On the railway grouping in 1923, Mr. Milton continued as Chief of Publicity, Southern Railway. In 1926 on the combination of publicity, advertising, and the taking over of all trade advertising from the contractors, he was appointed Assistant Advertising Manager, and in 1930, Superintendent of Advertising, also continuing as Editor of "Hints for Holidays" and of the *Southern Railway Magazine*. A special feature of his activities for many years has been the linking up of the company's advertising with that of the many resorts in the area served, and carrying out the combined advertisement schemes. Apart from the railway, he has for some years been a Councillor for the Borough of Wimbledon, and the work of the various committees concerned will supply an outlet for his future activities. He is also a Member of the Institute of Journalists.

We regret to record the death on August 18, at the age of 53, of Mr. R. S. Proud, Indoor Assistant to the Signal Engineer, London Transport. Mr. Proud joined the Signalling Department of the former District Railway as a draughtsman in 1908, and had been in that department throughout the various amalgamations of the Underground railways preceding the formation of the London Passenger Transport Board in 1933. He was a brother of Mr. H. M. Proud, Chief Commercial Engineer, Westinghouse Brake & Signal Co., Ltd. Mr. R. S. Proud was well known in signalling circles for his activities in connection with the Institution of Railway Signal Engineers.

Mr. C. R. Campbell, who, as recorded in our issue of August 12, has been appointed District Locomotive Superintendent, Carlisle, L.M.S.R., was educated at Whitworth School, Derby, and Derby Grammar School. In 1918 he entered the service of the former Midland Railway as a privileged apprentice, passing through various shops, and the Drawing Office. He was transferred to the Motive Power Department in 1924, and after a period in the motive power depots at Leicester and Derby, served in various supervisory positions in the running sheds at Lancaster (1926), Devons Road (1927), and Crewe North (1929). In 1933 Mr. Campbell was transferred to the office of the Divisional Superintendent of Operation (Motive Power) at Crewe. He came to Euston as an assistant in the office of the Superintendent of Motive Power in 1934, and a year later moved to Derby as an assistant in the office of the Divisional Superintendent of Operation (Motive Power).

Staff and Labour Matters

Railway Shopmen

The Railway Lines Committee of the Amalgamated Engineering Union, at its annual meeting in Glasgow on August 19, decided to make application to the railway companies regarding conditions and wages of various classes of workmen. The committee, which represents engineers employed in all sections of the railway industry, decided to make a request for a guaranteed week of 47 hours for all members of the union employed by the railway companies, for a pension scheme to be created for the engineers employed on vessels owned by the railway companies, and for improved wages and conditions for apprentices in all sections of the industry. The trade unions, as recorded in our issue of May 27, have already submitted to the railway companies a programme of claims for railway shopmen which include the consolidation of wages; an increase of 2d. an hour in wages; a 40-hour week; a guaranteed day and guaranteed week; and twelve days' holiday with pay, for consideration by the National Railway Shopmen's Council.

British Canal Traffics

We have received from the Ministry of Transport statistics relating to the tonnage of goods and minerals conveyed over a number of canals and waterways in Great Britain during the six months ended June 30 in each of the years 1936, 1937, and 1938. Of these canals 23 are railway-owned, and the total traffic conveyed upon them in the respective six months was 560,575 tons in 1938, against 649,246 in 1937, and 675,268 in 1936. It is noted that the Nottingham Canal of the L.N.E.R. on which 44,109 tons were conveyed in the first half of 1937 and 49,086 tons in the first half of 1936 was leased to the Trent Navigation Company as from October 1, 1937. Figures are also given of ten different classes of traffic carried by these canals. The largest traffics conveyed in the first half of 1938 were coal, coke, patent fuel, and peat, 226,614 tons, compared with 257,894 tons in the first half of 1937. Of agricultural produce and foodstuffs 94,887 tons were conveyed, against 106,890 tons in the corresponding period of 1937. Liquids in bulk provided 88,617 tons in the first half of 1938, compared with 89,754 tons in the first half of 1937. The tonnage of building materials (other than wood) was 57,929, or 31,622 tons lower than in the first half of 1937.

The canals and waterways other than railway-owned number 24, and do not include the Manchester Ship Canal. The volume of traffic conveyed over them in the first six months of 1938 was 6,085,153 tons, compared

with 6,631,327 tons in the first half of 1937, and 6,417,455 tons in the first half of 1936. The heaviest tonnages conveyed in the first half of 1938 were 1,255,400 on the Aire and Calder, 1,095,198 on the Birmingham, 918,640 on the Grand Union, 904,090 on the Lee Navigation, and 741,495 on the Leeds & Liverpool. In the first half of 1937 the Grand Union tonnage was 1,032,830. The heaviest traffic conveyed on canals other than railway-owned during the first six months of 1938 was in coal, coke, patent fuel, and peat, 2,980,357 tons, against 3,282,450 in the first six months of 1937. Tonnage of building materials (other than wood) rose from 454,917 tons to 502,962 tons, and of liquids in bulk from 531,485 tons to 576,330 tons, but in raw materials there was a drop from 551,568 tons in the first half of 1937 to 462,105 tons in the first half of 1938, in industrial products from 594,866 tons to 538,756 tons, and in agricultural produce and foodstuffs from 595,760 tons to 570,391 tons.

G.W.R. Poster Advertising

Posters advertising whole holiday areas, as distinct from individual resorts, are a feature of G.W.R. publicity this summer; and embody some designs of considerable merit from the points of view of composition and colouring. Two artists, Leonard Richmond and Alker Tripp, contribute Cornish coast scenes, both of which give the observer who is a stranger to the county a quick impression of how rugged grandeur of scenery is found side by side with firm sands and sheltered coves where all the holiday pleasures associated with a more "civilised" coastline may be pursued. With these, it is interesting to compare two posters of Devon, one again by Alker Tripp, and the other by Frank Newbould. Much of the fascination of the West Country comes from the contrasting atmospheres of these adjacent counties, and Mr. Tripp successfully catches the characteristics of the Devon coast in his scene of a village church and cottages standing on the wooded slopes of a small bay, where the clear blue of the water contrasts with the deeper tones of the sea beyond. Equally typical of this coast is Mr. Newbould's finely coloured view of a sweep of much-indented coastline, with bathers disporting themselves in the cove nearest to the foreground. Mr. Newbould is also responsible for an interesting poster view of Torquay, giving prominence to the sub-tropical vegetation for which the resort is noted, and showing beyond an attractive vista of boats, buildings, and beaches.

Coming further east, we have a pleasant Somerset scene by Alker Tripp, with huntsmen and hounds climbing a steep, secluded lane, and poultry pottering amiably in front of an old, thatched cottage.

NOTES AND NEWS

L.M.S.R. (N.C.C.) Traffics.—Receipts of the Northern Counties Committee (L.M.S.R.) for the week ended August 12 amounted to £10,150, an increase of £130. For the 32 weeks of the current year the aggregate earnings were £235,950, a decrease of £17,130.

All-Steel Wagons for L.M.S.R.—Fifty all-steel wagons having a carrying capacity of 16 tons each are to be built by the L.M.S.R. at Derby works for the conveyance on behalf of Imperial Chemical Industries of light soda ash in bulk. The first of these wagons will be placed into service in December.

Improved Telephone Facilities at Paddington.—The Great Western Railway is to instal at its Paddington station private telephone exchange new equipment providing for 100 additional extension lines. The exchange was opened in 1934, with capacity for 1,000 extensions, 800 of which will be in use when the new installation is complete.

The Southern Railway Buffet Car Plaques.—We regret that through a typographical error the name of the designer of the brass plaques fitted in the new buffet cars for the Southern Railway was incorrectly spelt. It should, of course, have read "Mr. George Kruger Gray." Reproductions of the six types of plaques appeared on page 164 of our issue of July 22.

Fire in Southern Railway Signal Box.—The Southern Railway signal box at Grove Park was badly damaged by a fire which broke out on Tuesday night, August 23. Some delays and diversions were suffered by suburban trains, and for some time through running to and from Bromley North was suspended, passengers having to change into a shuttle train at Grove Park.

"London Town" Poster.—A poster full of interest to the visitor in London, or to the Londoner himself, has been issued by the Southern Railway, and, as it embodies the useful feature of indicating the main-line termini with Underground connections, the London Passenger Transport Board has subscribed to its production. The poster is of quad-royal size, printed in colour, and takes the form of a humorous picture map of Central London. Appropriate figures are freely scattered among the streets and squares. Guy Fawkes is seen sidling furtively round the Houses of Parliament, oblivious of two Yeomen of the Guard stalking him with up-lifted halberds; two lawyers emerge from the Temple in heated argument; and in Harley Street a specialist sounds his patient's chest. Wherever the eye strays among these fascinating pictured thoroughfares, it encounters, in many strange idioms, that familiar London dialogue: "Can you tell me the way to —?" "Sorry, I'm a stranger here myself." The map is surrounded by a

frieze symbolising London as the centre of the Empire and the home of royal pageantry.

London-Belfast-Glasgow Air Service.—Owing to popular demand, Railway Air Services Limited has decided to extend its London-Belfast-Glasgow service, previously announced to be withdrawn after September 3, until September 10. The winter programme will be introduced on September 12.

Indian Derailment Due to Cloudburst.—According to a Reuters message from Trichinopoly dated August 21, 25 persons were killed and 117 injured when a passenger train was derailed between that city and Madura, at a point where the line had been washed away after a cloudburst. The engine was completely wrecked, but the driver escaped with injuries.

Conveyors for Holyhead.—With a view to speeding-up the handling of newspapers and merchandise between trains and steamers at Holyhead, the L.M.S.R. is to instal electrical conveyors for transferring such traffic from the platform trucks to the Dun Laoghaire steamers. The conveyor on the quay will include a portable section of belt 43 ft. long and 3 ft. wide, adjustable for all conditions of the tide and with speed variable up to a maximum of 200 ft. a minute. The three steamers working between Holyhead and Dun Laoghaire will be fitted with distributing conveyors, which will be stored on deck when not in use.

Izmir (Smyrna) International Fair.—The British Government is again taking part officially in the International Trade Fair to be held at Izmir (Smyrna) from August 20 to September 20 this year. The exhibits in the United Kingdom building have been chosen to illustrate the theme of Transport. They include a model of the L.M.S.R. express locomotive *Princess Royal*, accompanied with large photographs showing locomotives under construction, and a selection of the pictorial posters issued by the British railway companies; a model of the flying boats used by Imperial Airways on the main air routes between the United Kingdom and the overseas empire; and a model of the Short-Mayo composite aircraft built by Imperial Airways and the Air Ministry for experimental work across the North Atlantic.

Improvements to King's Cross Station, L.N.E.R.—In connection with the general improvements that are being carried out at King's Cross station, the L.N.E.R. has now decided to widen the central platform in the western section of the station, the faces of which are numbered 7 and 8. This platform was added a number of years ago. The plan now approved provides for doubling the width and also connecting it by a staircase with the footbridge over the station, and, by means of a lift, to the subway which is being constructed for parcels traffic beneath the station.

This subway will then connect all the platforms with the new parcels and mail bag depot, now in course of construction, to the west of the station. When this depot is brought into use all mail and parcels traffic will be dealt with through the subway and the platforms will be relieved of a great deal of congestion. The widening of this platform will be carried out concurrently with the general scheme of improvement now in hand.

Railway Cigarettes.—Further publicity for the Flying Rance express is afforded by the new "Flying Rance" brand of cigarettes, which have recently been put on sale over a very large area of India. Samples of labels and even cartons for 10, 50, and 500 cigarettes (all dummies, alas), which have reached us from the publicity office of the Bombay, Baroda & Central India Railway, depict in colours this well-known express crossing a spectacular-looking viaduct having rows of violet columns. These cigarettes of course should be lit only with the "Flying Rance" brand of matches mentioned in our issue of December 3, last year. We now await the production of "Flying Rance" cigars for the more opulent.

Northern Ireland Traffics.—Passengers carried on railways wholly in Northern Ireland (excluding season-ticket holders) in the first five months of 1938 numbered 1,626,694, compared with 1,679,504 in the first five months of 1937, and ordinary passenger receipts fell from £86,226 to £84,087. Merchandise and minerals conveyed in the first five months of 1938 were 222,705 tons, a decrease of 33,231 tons in comparison with the first five months of 1937; the number of livestock fell from 86,460 to 79,991, and the total goods traffic receipts from £93,896 to £83,706. On railways partly in Northern Ireland the ordinary passengers in the first five months of 1938 were 1,724,765, against 1,758,468 in the first five months of 1937, and the total passenger receipts of £150,677 were £166 lower. Merchandise and mineral tons dropped from 397,680 to 358,093, and the number of livestock from 296,551 to 253,753, and the total receipts from goods traffic were £245,583, against £265,446 for the first five months of 1937.

Southern Railway Garden Show.—The 22nd Annual Garden Show and Fête of the Southern Railway (London West Division) was held on the company's sports ground, Raynes Park, on August 24. The team prizes for vegetables grown by groups of railwaymen were won by Copplestone (Group One), and London West Division (Group Two); the principal prize-winner for exhibits of flowers and vegetables in conjunction was W. Hayter, shunter at Waterloo, who collected 17 firsts, 4 seconds, and 7 thirds. Fortunately, the weather was at its best, and towards the end of the day there was an attendance of approximately 10,000; apart from the exhibition of garden-produce, athletic events

or adults and children and various side-shows (including a 7½-in. gauge model railway, which carried an extensive passenger traffic) constituted the main attractions of an interesting day. Among those present were Mr. and Mrs. Eric Gore-Browne, Mr. and Mrs. Gilbert Szlumper, Mr. E. J. Missenden, Mr. J. L. Sharpe, and many other officers of the company. The prizes were presented by Miss Gore-Browne. Proceedings terminated with a concert-party and dancing on the lawn, and the organising committee, with Messrs. J. L. Sharpe and N. E. Hedge as Chairman and Secretary respectively, is to be congratulated on the excellence of the arrangements.

Evening Classes in London.—The North-Western Polytechnic, Prince of Wales Road, N.W.5, re-opens for enrolment for the 1938-39 session, on Monday, September 19. The Senior Transport lecturer, Mr. E. T. Milburn, will be in attendance from 6 to 9 p.m., on Tuesday, September 20, Wednesday, September 21, and Friday, September 23. There

will be courses for the preliminary, graduateship, and associate membership (road and rail) examinations of the Institute of Transport. In addition, classes will be held for the Royal Society of Arts certificates in road transport, for those engaged in goods or passenger transport by road, who cannot take the examination of the Institute of Transport.

U.S.A. Railways' Demand for Extension of Coal Tariff Increases.—A Reuters message from New York states that according to an announcement, on August 19, by the Association of American Railroads, the railway companies have filed with the Interstate Commerce Commission a petition for an indefinite extension of the freight rate increases on bituminous coal. These increases, ranging from 3 to 15 cents a ton, were granted in October, 1937, but were scheduled to expire at the end of the year. The request was based on the critical financial position of the railway's making it imperative to secure additional revenues.

British and Irish Railway Stocks and Shares

Stocks	Highest 1937	Lowest 1937	Prices	
			Aug. 24, 1938	Rise/ Fall
G.W.R.				
Cons. Ord.	67½	55½	34	-3½
5% Con. Prefce.	127	108	94½	-5
5% Red. Pref. (1950) ..	113	109	99½	—
4% Deb.	113½	102½	106	—
4½% Deb.	118	106	108½	—
1½% Deb.	124½	112	113½	—
5% Deb.	136½	122½	126½	-1
2½% Deb.	76	64	66½	—
5% Rt. Charge	133½	118	119½	-1
5% Cons. Guar.	133½	116½	106½	-7
L.M.S.R.				
Ord.	36½	25½	13¼	-½
4% Prefce. (1923) ..	82½	65½	27½	-2½
4% Prefce.	92½	77½	51½	-4½
5% Red. Pref. (1955) ..	107½	102	74½	-4
4% Deb.	108	99½	100½	-½
5% Red. Deb. (1952) ..	117½	111	112½	—
4% Guar.	104	95½	85½	-2
L.N.E.R.				
5% Pref. Ord.	12½	6½	4¼	—
Def. Ord.	6¼	3½	2½	—
4% First Prefce.	79½	63	25½	-1½
4% Second Prefce.	31½	21	10½	—
5% Red. Pref. (1955) ..	101½	89½	49½	—
4% First Guar.	103	91½	77½	—
4% Second Guar.	97½	85½	59½	-4
3% Deb.	84½	74	72	-½
4% Deb.	107½	98½	96½	-½
5% Red. Deb. (1947) ..	113½	106½	108½	-1
4½% Sinking Fund Red. Deb.	110½	105½	107	—
SOUTHERN				
Pref. Ord.	98½	83½	50½	-4
Def. Ord.	27½	16½	12½	-1
5% Pref.	126½	105½	93½	-6
5% Red. Pref. (1964) ..	118	110¼	102½	-4½
5% Guar. Prefce.	133¼	116¼	109½	-6
5% Red. Guar. Pref. (1957) ..	118½	111½	111½	-2
4% Deb.	112	101¼	105	-½
5% Deb.	135¼	123½	126½	—
4% Red. Deb.	113	105	106½	—
1962-67				
BELFAST & C.D.				
Ord.	5	4	4	—
FORTH BRIDGE				
4% Deb.	106	99½	100½	—
4% Guar.	105¼	99	99½	—
G. NORTHERN (IRELAND)				
Ord.	11	5	3	—
G. SOUTHERN (IRELAND)				
Ord.	50	21½	20	—
Prefce.	61	34	13	-½
Guar.	94¼	69½	35	—
Deb.	95	82½	70	—
L.P.T.B.				
4½% "A"	123¼	110½	118½	—
5% "A"	135	121½	128½	—
4½% "T.F.A."	108¼	104	106	—
5% "B"	125	114½	119½	—
"C"	99¼	75	73½	—
MERSEY				
Ord.	42½	22	20	+3
4% Perp. Deb.	193	96¼	99	—
3% Perp. Deb.	77½	74½	73½	—
3% Perp. Prefce.	64¼	61¼	65	—

British and Irish Traffic Returns

GREAT BRITAIN	Totals for 33rd Week			Totals to Date		
	1938	1937	Inc. or Dec.	1938	1937	Inc. or Dec.
L.M.S.R. (6,834 mls.)						
Passenger-train traffic...	641,000	619,000	+ 22,000	17,526,000	17,520,000	+ 6,000
Merchandise, &c. ...	413,000	496,000	- 83,000	14,873,000	16,043,000	- 1,170,000
Coal and coke ...	236,000	241,000	- 5,000	8,183,000	8,380,000	- 197,000
Goods-train traffic ...	649,000	737,000	- 88,000	23,056,000	24,423,000	- 1,367,000
Total receipts ...	1,290,000	1,356,000	- 66,000	40,582,000	41,943,000	- 1,361,300
L.N.E.R. (6,315 mls.)						
Passenger-train traffic...	446,000	441,000	+ 5,000	11,322,000	11,424,000	- 102,000
Merchandise, &c. ...	284,000	335,000	- 51,000	10,368,000	11,058,000	- 690,000
Coal and coke ...	216,000	249,000	- 33,000	7,764,000	8,090,000	- 326,000
Goods-train traffic ...	500,000	581,000	- 81,000	18,132,000	19,148,000	- 1,016,000
Total receipts ...	946,000	1,025,000	- 79,000	29,454,000	30,572,000	- 1,118,000
G.W.R. (3,737 mls.)						
Passenger-train traffic...	294,000	296,000	- 2,000	7,358,000	7,430,000	- 72,000
Merchandise, &c. ...	177,000	205,000	- 28,000	6,072,000	6,482,000	- 410,000
Coal and coke ...	101,000	111,000	- 10,000	3,519,000	3,656,000	- 137,000
Goods-train traffic ...	278,000	316,000	- 38,000	9,591,000	10,138,000	- 547,000
Total receipts ...	572,000	612,000	- 40,000	16,949,000	17,568,000	- 619,000
S.R. (2,148 mls.)						
Passenger-train traffic...	419,000	417,000	+ 2,000	10,973,000	11,039,000	- 66,000
Merchandise, &c. ...	63,000	68,000	- 5,000	1,973,500	2,048,500	- 75,000
Coal and coke ...	30,000	30,000	—	981,500	1,001,500	- 20,000
Goods-train traffic ...	93,000	98,000	- 5,000	2,955,000	3,050,000	- 95,000
Total receipts ...	512,000	515,000	- 3,000	13,928,000	14,089,000	- 161,000
Liverpool Overhead (6½ mls.)						
Mersey (4½ mls.) ...	4,236	3,889	+ 347	144,036	138,002	+ 6,034
*London Passenger Transport Board ...	539,200	536,100	+ 3,100	4,483,500	4,449,700	+ 33,800
IRELAND						
Belfast & C.D. pass.	4,046	3,888	+ 158	86,273	89,517	- 3,244
" " goods	443	435	+ 8	14,105	16,112	- 2,007
" " total	4,489	4,323	+ 166	100,378	105,629	- 5,251
Great Northern pass.	16,800	16,100	+ 700	361,950	367,250	- 5,300
" " goods	8,800	9,600	- 800	289,600	311,100	- 21,500
" " total	25,600	25,700	- 100	651,550	678,350	- 26,800
Great Southern pass.	55,641	56,178	- 537	1,204,910	1,201,637	+ 3,273
" " goods	38,697	38,046	+ 651	1,275,618	1,331,697	- 56,079
" " total	94,338	94,224	+ 114	2,480,528	2,533,334	- 52,806

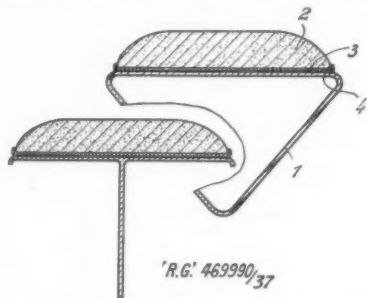
* 8th Week (before pooling)

ABSTRACTS OF RECENT PATENTS*

No. 469,990. Current Bow Collector

Siemens-Planiawerke A.G. für Kohle-fabrikate of Herzbergstrasses, 128-139, Berlin-Lichtenberg, Germany. (Convention date March 28, 1936)

In a carbon bow collector which comprises a bridge-shape carrier with a

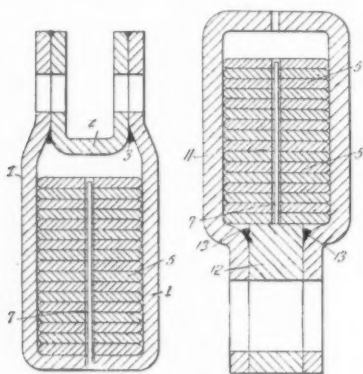


carbon collecting shoe arranged thereon, the carbon collecting shoe is previously roughened and coppered, and then butt-soldered to the metal carrier. In one form the metal carrier 1, which is a triangular tube in cross section, has the carbon collecting shoe secured thereto by a layer of solder 4, there being interposed a coating of copper 3 applied to the lower surface of the shoe 2. Bearing blocks with bearing studs are arranged at the ends of the metal carrier for carrying the collector in the usual holder. In another form the carrier is of T-section.—(Accepted August 6, 1937.)

No. 470,066. Locomotive and Wagon Spring Suspension Buckle

Donald Russell Martin Yates, O.B.E., of Highclere, Chislehurst, Kent. (Application date February 3, 1936)

In order to avoid the unbalanced stresses and the possibility of deteriora-



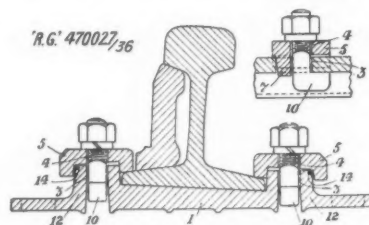
tion of the tempering of the leaf spring which arise by the use of the shrinkage process commonly employed in the assembly of an ordinary spring buckle

about the spring, the invention proposes to assemble the buckle and spring by a cold assemblage process, and for this purpose there is employed a buckle which comprises two metal members 1 or 11, and 2 or 12, one of which is U-shaped to accommodate the leaf spring 5 which is positioned on a rod 7, the U-member being of greater width than the other member to enable the two members to be welded together by the joint 3 or 13.—(Accepted August 3, 1937.)

No. 470,027. Railway Rail Chair

Colvilles Limited, and Robert Walker MacBride, both of 195, West George Street, Glasgow, C2. (Application date February 8, 1936.)

This invention relates to chair assemblies in which the rail is held in place on a metal chair plate by clips and bolts, and its feature is the use of a substantially L-shaped clip securing bolt 4 of which one limb 10 is the bolt head and which can be passed head



first through a bolt hole 3 in the chair plate 1, the clip 5 being adapted to fulcrum on a joggle 12 and having an integral plug 7 which when the clip is mounted on its bolt is located in the bolt hole 3 and alongside the bolt to maintain the bolt head in a position in which the bolt can obtain a purchase on the chair and cause the clip to lever about the joggle edge 14 and effect a positive downward clamping action on the rail base.—(Accepted August, 9, 1937.)

No. 470,990. Ventilating Railway Stations

Carrier Engineering Co. Ltd. and C. L. Sainty, both of 24, Buckingham Gate, London, S.W.1. (Application date March 17, 1936.)

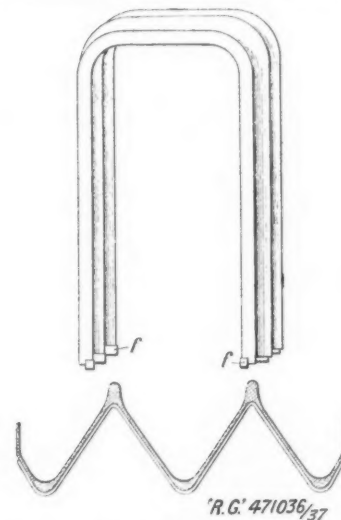
To avoid the excessive loading of the atmosphere by the discharge from engine chimneys when standing or slowly moving through a station, the discharge from the chimneys is collected by limiting the extraction of the atmosphere to the neighbourhood of each chimney, and for this purpose a collecting duct open on the underside is disposed over the permanent way to collect the fumes from engine chimneys located thereunder, the collecting duct

being provided at intervals with branches which lead to an exhaust duct, but the extraction of gases being restricted to a particular section of the collecting duct between two branches by the provision of pivoted baffles in the branches which normally close the respective branches and which may be manually or automatically controlled to open when the engine comes under the associated section, the exhaust fan at the same time being started.—(Accepted August 26, 1937.)

No. 471,036. Flexible Gangway Bellows for Railway Cars

Maurice Hautot, of Nr. 114, rue de la Gare, Saint-Denis (Seine Department), France. (Application date February 16, 1937.)

A light bellows of homogeneous construction is provided by making it of moulded sheet rubber which may be prepared from latex or other aqueous dis-



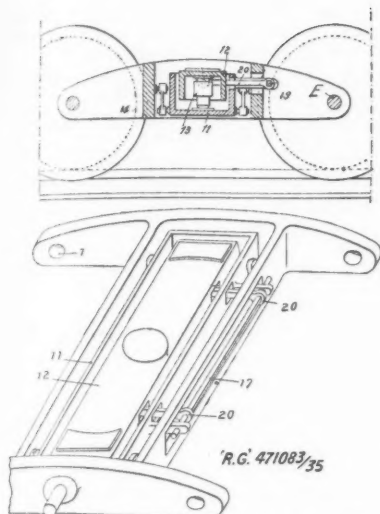
persion of rubber either natural or synthetic, the sheet being entirely free of any flexible or rigid armature, and conveniently being of zigzag section reinforced by integral ribs at the corners of the folds. Replaceable rubber flaps *f* which rub on the gangway, are secured to the lower edges of the bellows.—(Accepted August 26, 1937.)

No. 471,083. A Mono-suspension Bogie

Société d'Inventions Aeronautiques et Mécaniques S.I.A.M., of 1, Route des Alpes, Fribourg, Switzerland. (Convention date November 18, 1935.)

According to this invention a single resilient member or device (which may be of the oleo-pneumatic type) assures the vertical suspension of the body of the vehicle, whilst the whole vertical displacement sustained by the wheels is transmitted to this member or device. In one form the bogie frame is of H-cross section having the single suspension member 13 arranged at the centre of a transversely oscillatable crossframe 11, the vehicle body being supported

* These abridgments of recently published specifications are specially compiled for THE RAILWAY GAZETTE by permission of the Controller of His Majesty's Stationery Office. Group abridgments can be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2. either sheet by sheet as issued, on payment of a subscription of 5s. a group volume, or in bound volumes, price 2s. each, and the full specifications can be obtained from the same address price 1s. each

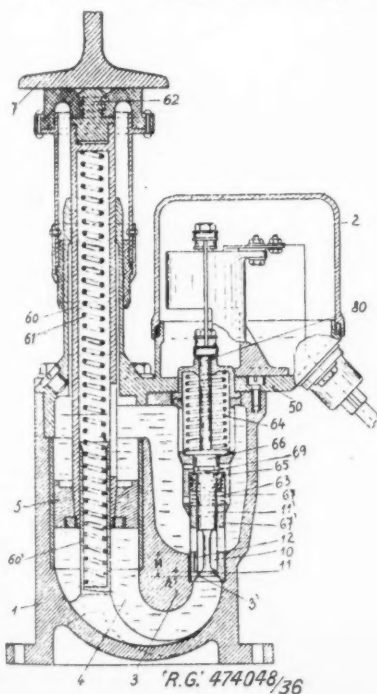


on a vertical slide 12 which is elastically supported by the suspension 13 and cradled in the bogie crossframe 11. Torsional resistance to rolling of the vehicle body in relation to the bogie is offered by the shaft 17 fixed to the ends of two arms 20 articulated to the body support slide 12.—(Accepted August 27, 1937.)

No. 474,048. Electric Contact Devices

J. Fryba, of Ceskomoravska ulice 107, Prague VIII Czechoslovakia. (Application date April 23, 1936.)

This invention is a contact device for train-operated signalling systems. The contact apparatus is mounted in a fixed support between the sleepers and below the track. It consists of a pressure vessel 1 charged with a liquid,

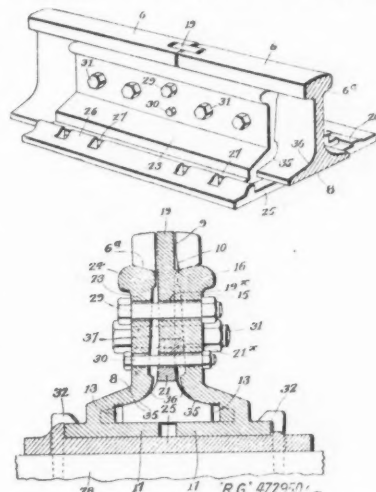


and directly connected to a watertight contact box 2. There are two cylindrical chambers 4 and 10 in which respectively work the main piston 5 and the compensating piston 11. Vertical displacements of the rail are transmitted to the pressure vessel by the main piston and the compensating piston is immediately displaced, equalising the pressure in the liquid and contacting the electrical circuit of the signalling system.—(Accepted October 25, 1937.)

No. 472,950. Rail Joints

M. Slyder, of 4,800 N. Camac Street, Philadelphia, Pennsylvania, U.S.A. (Application date April 5, 1937.)

This is a rail joint in which the fishplates consist of a web portion 15 having an outwardly and upwardly curved flange 16 which fits the lower portion 6a of the tread. The inner fishplate is formed integral with a bridging member 19, which is designed



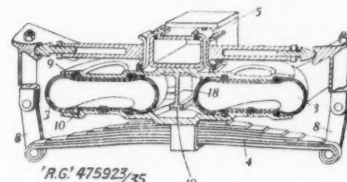
to fit within registering slots 9 in the rail ends. Both fishplates receive the basis of the rails at suitable cut-away portions 13 and the lower edges of the fishplates rest against the abutments 26 of the rail chair. Spikes 32 complete the joint.—(Accepted October 4, 1937.)

No. 475,923. Bogies

P. Algrim, of 120, Rue Parmentier, La Croyere, Belgium. (Convention date April 20, 1935.)

This invention is a proposed improvement for bogies provided with pneumatic cushions. The load of the vehicle is transmitted to the springs 4 through the member 5 and the connecting rods 8. Downward movement of the member 5 relative to the springs 4 causes the cushions 3 to be compressed between the plates 9 and 10. The plate 9 has a member 18 fixed to it, the lower surface of which is normally clear of the plate 10 but comes into contact with the plate 10 for a given degree of deflation of the cushions 3; that is to say, the member

18 limits the downward movement of the member 5 relative to the springs 4. The lower surface of the member 18 is provided with a plate or slab 19 of a compressible substance such as rubber. It will be seen that although the load is received by the member 18 on deflation of the cushions, the air-borne area of the latter is in no way decreased and that the power of recovery of the pneu-



matic cushioning arrangement is in no way decreased. Also, the provision of the slab 19 ensures that there is always an elastic, vibration-absorbing support.—(Accepted November 22, 1937.)

COMPLETE SPECIFICATIONS ACCEPTED

469,989. Nemetz, G. Lubricating means for axle bearings of railway vehicles.

470,262. Williams, L. Wynn. Insulated fishplates.

470,203. Gray, W. T., and Metropolitan-Vickers Electrical Co. Ltd. Direct electric current traction equipments arranged for regenerative braking.

470,215. Reid, W., and Little, W. M. Operation of electric tramway and railway points.

470,318. Rheinmetall-Borsig A.G. Werk-Borsig Berlin-Tegel, and Geissen, C. Railway Vehicles.

470,319. Rheinmetall-Borsig A.G. Werk-Borsig Berlin-Tegel, and Geissen, C. Railway Vehicles.

470,371. Mesters, J. A. H. Railway rail joints.

470,324. Williams, L. Wynn. Insulated fishplates.

470,571. Sinclair, H. Power-transmission systems for railway vehicles.

470,507. Wellman Smith Owen Engineering Corp. Ltd., and Purves, G. T. Coke wagons.

471,036. Hautot, M. Flexible gangway bellows for railway cars.

471,173. Hazlett, S. J. Body construction of railcoaches, omnibuses, motorcars, and other like structures.

471,378. Moreau, H. Electric systems for automatic regulation of the temperature in railway vehicles.

471,308. British Thomson-Houston Co. Ltd. Railway trucks.

471,311. Sinkovich, D. Fastening and anti-creep devices for railway rails.

471,619. Witkowitz Bergbau und Eisenhütten-Gewerkschaft, and Belohlavek, B. Water tube locomotive boilers.

471,728. Poor & Company. Railway rail anchor.

472,223. Westinghouse Brake & Signal Co. Ltd. Fluid-pressure braking apparatus for railway and other vehicles.

472,487. Kershaw, A. G., and Westinghouse Brake & Signal Co. Ltd. Fluid-pressure indicating devices.

472,287. Vereinigte Eisenbahn Signal-Werke Gesellschaft. Arrangement for the automatic protection of railway sections by means of axle counters.

CONTRACTS AND TENDERS

D. Wickham & Co. Ltd. has received an order from the Burma Railways Administration for four railcars.

D. Wickham & Co. Ltd. has also received an order from the South African Railways & Harbours Administration for 50 bogie rail transporters.

£50,000 Indian Contract

Jessop & Co. Ltd. has received the contract, amounting to Rs. 41,565 per span or Rs. 7,06,605 in all—equivalent to £53,000—f.o.r. Dum Dum (Calcutta), for the supply of the new steelwork required for regirding the Victoria bridge over the Jhelum River, on the North Western Railway. Delivery is to begin in 40 weeks, and to be completed within 52 weeks. Tata Iron & Steel Co.'s steel will be used.

The Baldwin Locomotive Works has received an order from the Bengal-Nagpur Railway Administration for one flue-cleaning machine and motor.

The North British Locomotive Co. Ltd. has received an order through W. Billinton & Co. Ltd. for nine right-hand and nine left-hand locomotive connecting rods.

The Metropolitan-Cammell Carriage & Wagon Co. Ltd., has received an order from the Bengal North Western Railway, to the inspection of Messrs. Rendel, Palmer & Tritton, for nine bogie carriage underframes mounted on Geo. H. Sheffield & Co. (Engineers), Ltd. Sheffield-Twinberrow welded-frame bogies and complete with wheels and axles for metre-gauge service.

The Indian Stores Department has placed orders for train lighting dynamos as follow:—

Mather & Platt Limited: 15 train-lighting dynamos, together with 15 auto switches.
Volkart Brothers: 20 train-lighting dynamos.
G.E.Z. Electric Train Lighting Company (Berlin): 5 train-lighting dynamos, and 5 sets of G.E.Z. combination switchgear.

The English Steel Corporation has received an order from the South Indian Railway Administration for 33 axle billets to be supplied to the inspection of Messrs. Robert White & Partners.

The Crown Agents for the Colonies have recently placed the following orders:—

J. W. Jackman & Co. Ltd.: Moulding machine.
Round Oak Steel Works Limited: M.S. channels.
Stanton Ironworks Co. Ltd.: Pipe and fittings.
Westinghouse Brake & Signal Co. Ltd.: Pressed steel vacuum-brake cylinders and signal materials.
Butler Machine Tool Co. Ltd.: Shaping machine.
P. & W. MacLellan Limited: Steel.
Horsehay Co. Ltd.: Steelwork.
Wright, Anderson & Co. Ltd.: Steelwork.
Ferguson, Pailin Limited: Switchgear.
Marconi's Wireless Telegraph Co. Ltd.: Telegraph/telephone diversity receiver.
General Electric Co. Ltd.: Telephone apparatus.
F. Smith & Sons: Telephone stores.
Standard Telephones & Cables Limited: Time announcing machine.

The Drewry Car Co. Ltd. has received an order from the Tasmanian Government Railways for two 6L3 Gardner-engined diesel power bogies with controls for multiple-unit railcar operation, thus making, with the four 6LW-engined units already ordered, a total of six at present in hand for this administration.

The Drewry Car Co. Ltd. has also received an order from the Queensland Government Railways for one 6L3 Gardner-engined power unit and complete transmission set, together with all controls for a diesel locomotive.

The Drewry Car Co. Ltd. has also received a further repeat order from the New Zealand Government Railways for one shunting locomotive to be fitted with a 75-b.h.p. Parsons petrol engine, hydraulic coupling and Wilson-Drewry transmission.

The Soc. Commerciale d'Ougrée has received an order from the Bombay, Baroda & Central India Railway for 14,650 bearing plates to be supplied to the inspection of Messrs. Rendel, Palmer & Tritton.

Jost's Engineering Co. Ltd. has received an order from the Indian Stores Department for the conversion of the attended traction sub-stations on the G.I.P.R. to unattended sub-stations, using the Standard Telephones & Cables system of supervisory remote control.

Tenders are invited by the Chief Controller of Stores, Indian Stores Department (Electrical Section), Simla, receivable by September 3, for the supply of 1,500 solid-drawn steel boiler tubes.

The South African Railways & Harbours Administration is calling for tenders (Tender No. 1840) for the supply and delivery of quantities of train lighting belting, indiarubber impregnated, 2½ in. wide by 4 ply and 3½ in. wide by 4 ply. Tenders, endorsed "Tender No. 1840, Train Lighting Belting" must reach the Chief Stores Superintendent, South African Railways & Harbours Headquarter Offices, Johannesburg, by September 26. Samples of approximately 12 to 18 inches in length of each brand of belting offered should

accompany tenders. A copy of the schedule of requirements and general conditions of contract may be borrowed from the Department of Overseas Trade, London, S.W.1.

The South African Railways & Harbours Administration is calling for tenders (Tender No. 1846) for the supply and delivery of five locomotive boilers, standard type No. 3B, complete with steel fireboxes. Tenders endorsed "Tender No. 1846, Locomotive Boilers" should reach the Secretary to the Tender Board, South African Railways & Harbours Headquarter Offices, Johannesburg, by October 24. A copy of the specifications and general conditions of tender may be borrowed from the Department of Overseas Trade, London, S.W.1.

Facilities offered to Commercial Visitors to India

As the usual time for business visits to India is approaching, the attention of United Kingdom firms is drawn to the facilities which the Trade Commissioner Service can afford to representatives visiting India. Sir Thomas Ainscough, C.B.E., His Majesty's Senior Trade Commissioner in India, Burma, and Ceylon, and his colleagues, Mr. W. D. M. Clarke, His Majesty's Trade Commissioner at Bombay, and Mr. A. Schofield, His Majesty's Trade Commissioner at Calcutta, are particularly desirous of meeting visitors from the United Kingdom, as they feel that with their organisation they are in an excellent position to render assistance, either to principals undertaking a special mission of investigation, or to commercial representatives who are developing the sale of goods of United Kingdom manufacture in India. The Department of Overseas Trade will, accordingly, be pleased to provide representatives of firms contemplating such a visit with letters of introduction to the trade commissioners in question. In addition, an officer of the Indian Section of the department in London will be pleased to discuss with representatives the proposed tour with a view to rendering assistance not only as regards market conditions obtaining in India at the present time, but also, if desired, in respect of itinerary, clothing, equipment, and so on.

Exports of Railway Material from the United Kingdom in July

	July, 1938		July, 1937		Seven Months Ending July, 1938		July, 1937	
	£	l	£	l	£	l	£	l
Locomotives, rail	115,460		93,952		881,443		650,979	
Carriages and wagons	129,509		215,058		1,679,977		1,724,137	
Rails, steel	58,444		189,077		764,961		816,281	
Wheels, sleepers, fishplates and miscellaneous materials	200,716		177,343		1,285,289		888,345	
Locomotive and rail exports included the following:—								
	Locomotives		Rails					
	July, 1938	July, 1937	July, 1938	July, 1937				
Argentina	11,613	7,544	2,974	820				
Union of South Africa	—*	—*	13,847	9,870				
British India	33,057	28,033	8,806	7,154				

* Figures not available

OFFICIAL NOTICES

South Indian Railway Company Limited

THE Directors are prepared to receive Tenders for the supply of:—

1. Steel Tyres.
2. Copper Plates.

Specifications and Forms of Tender will be available at the Company's Offices, 91, Petty France, Westminster, S.W.1.

Tenders addressed to the Chairman and Directors of the South Indian Railway Company Limited marked "Tender for Steel Tyres," or, as the case may be, with the name of the firm tendering, must be left with the undersigned not later than 10 a.m. on Friday, the 2nd September, 1938, in respect of Specification No. 2, and not later than 12 noon on Friday, the 16th September, 1938, in respect of Specification No. 1.

The Directors do not bind themselves to accept the lowest or any tender.

A charge, which will not be returned, will be made of 10s. for each copy of each Specification.

Copies of the drawings may be obtained at

the Offices of the Company's Consulting Engineers, Messrs. Robert White & Partners, 3, Victoria Street, Westminster, S.W.1.

E. A. S. BELL,

Managing Director.

91, Petty France, Westminster, S.W.1.
24th August, 1938.

Universal Directory of Railway Officials and Railway Year Book

44th Annual Edition, 1938-39

This unique publication gives the names of all the principal railway officers throughout the world, together with essential particulars of the systems with which they are connected. Much general and statistical information about railways is also concisely presented.

Price 20/- net.

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CARRIAGE AND WAGON DESIGNER
DRAUGHTSMAN required by large rolling stock works in India. A single man, about 30 years of age, preferred, who has had extensive drawing office and practical works experience in a rolling stock works of repute. Five years' agreement, free passages, provident fund, and a salary of about £45 per month. Apply by letter, with copies of testimonials, stating age, and whether married, to "Solebar," c/o Messrs. W.M. ABBOTT, LTD., 32, Eastcheap, London, E.C.3.

IMPROVEMENTS in or Relating to Means for Lubricating the Wheel Flanges of Rail Vehicles. The Proprietors of British Patent No. 431,183 desire to arrange for the commercial working of this patent by sale outright or by licences granted on participating and reasonable terms. Particulars obtainable from TECHNICAL RECORDS LIMITED, 59-60, Lincoln's Inn Fields, London, W.C.2.

RAILWAY AND OTHER REPORTS

Erie Railroad.—Operating revenues for 1937 totalled \$83,925,726, a decrease of \$1,079,384, compared with the previous year, while expenditure, at \$60,997,803, was \$2,115,252 higher, leaving net revenue \$22,927,922, against \$26,122,559. Deducting \$9,313,913 for tax accruals and net rents, and adding other miscellaneous income, total income was \$14,800,054, as compared with \$17,636,889 in 1936. Sundry deductions \$681,737 and fixed charges \$14,551,610, leave a net debit of \$433,293.

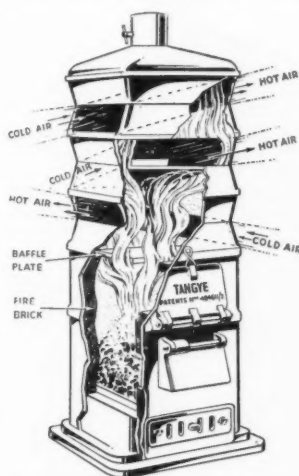
Union Pacific Railroad Company.—Operating revenues for 1937 amounted to \$162,064,310, as compared with \$155,213,582, in 1936, while expenses were \$116,834,578, against \$108,728,114. Taxes absorbed \$13,244,160, as against \$13,057,039, and with further deductions for the debit balance of hire of equipment and rents for joint lines, &c., leaves net income from transport operations \$22,886,260, compared with \$25,070,627 in 1936. Adding income from investments, less fixed charges, net income remains at \$17,655,516, and although this is \$4,553,019 less than in 1936, dividends are maintained at 4 per cent. and 6 per cent. respectively on preferred and common stock, the surplus to profit and loss being correspondingly reduced.

Baltimore & Ohio Railroad.—Total revenue in 1937 amounted to \$169,436,436, or \$443,755 higher than in the previous year, but operating expenses, at \$128,859,516, were \$5,259,183 more. Deducting tax accruals, and equipment and joint facility rents, and adding investment income, left a balance available for fixed charges of \$31,463,336, but as fixed interest and other charges amounted to \$32,184,031, a deficit resulted of \$720,695. Passenger revenue totalled \$11,918,602, and freight \$147,212,330, compared with \$11,182,942 and \$147,816,918, respectively, in the previous year, with revenue from other sources, \$10,305,504, against \$9,992,821. Notwithstanding the termination on December 31, 1936,

of the emergency increase in freight rates, the decrease in freight receipts was only very slight. Had the emergency charges been continued during 1937, freight revenue would have been about \$7,000,000 more, notwithstanding the almost unprecedented decline in business activity. Despite this loss in revenue and the increase in operating costs due to higher prices of fuel and materials, as well as the increases in wages during the latter part of the year, the net income available to meet the fixed charges was but \$720,695 less than the total of the fixed interest and other obligations.

A Factory Heating Stove

Having developed for use in its own shops a factory heating stove combining various desirable elements of economy and efficiency, the firm of



Internal arrangement of stove

Tangyes Limited has decided to market the design for general sale. Fuel economy is achieved in this stove by giving the hot gases a long travel

with constant changes of direction before escaping up the flue, in the course of which they warm all surfaces of the large air passages. These passages are arranged one above the other, at right angles, so as to distribute strong currents of heated air in all directions. Being free from awkward turns and corners, they are easy to clean, for which purpose the stove can be dismantled easily. Extra heating sections can be added as required.

Extended tests went to making these stoves immune from overheating and burning. The firebox is lined (ordinary firebricks can be used) with a protecting and easily renewable baffle plate over the fire. The perfected design after two years' ordinary use shows no observable signs of deterioration. Control of combustion is said to be especially simple and effective and the stove may be left unattended, as at night, for several hours. The stove will burn anthracite, coke, or coal. Its coke consumption is 64 lb. per 12 hr. (including lighting up), and the stove is capable of heating effectively 60,000 cu. ft. of shop space.

BERMUDA RAILWAYS INVESTMENT COMPANY.—The directors of Bermuda Railways Investment Company propose a year's extension of the five-year interest and sinking fund moratorium on the 6½ per cent. first mortgage debenture stock, i.e., until September 30, 1939, and July 1, 1940, respectively. It is also proposed to appoint a debenture stockholders' committee of two representatives, with power to authorise further extensions of the moratorium up to an additional two years. The surplus (before depreciation) of the operating subsidiary, Bermuda Railway Company, for the year to June 30, 1938, is estimated at £9,600, against £15,120 for the previous year. The reduction is attributable mainly to increased maintenance expenditure and in part to a decrease in tourist and cruise traffic as the result of American conditions.

Railway Share Market

Despite the commencement of a new Stock Exchange account on Monday, business in the stock and share markets has remained very restricted this week. Uncertainty regarding European political developments continued to affect sentiment, and, in the absence of demand, values in most departments of the Stock Exchange have moved against holders.

On Wednesday, when there was some improvement in the undertone of markets, Home railway securities had a steadier appearance, despite the further decline in traffic receipts. The latter had been anticipated, and not only marginal stocks, but also guaranteed stocks and debentures had again made lower prices at the beginning of the week. In fact, the decline in guaranteed stocks would seem to have assumed absurd proportions unless the main line railways are to be faced with a period of extreme depression during the next few years. With the exception of those of the L.N.E.R., which, however, seem to have a reasonable possibility of receiving their full distribu-

tions for 1938, they can be regarded as still extremely well covered as to dividend. No doubt when markets become reasonably active these stocks will show a satisfactory rally, and the debentures should also record some improvement, if, as seems likely, the prices now ruling arise very largely from the absence of demand. So far as can be judged, no heavy selling has been experienced during the past few weeks. In the case of marginal stocks and junior preference securities, however, a good deal of liquidation has probably been in evidence since publication of the half-yearly statements, which, of course, came as a general disappointment, because they showed a bigger increase in expenses than expected in most quarters and a larger fall in net revenue than had been estimated in the market.

Earlier in the week Great Western ordinary was down to 32½, but there has since been an improvement to 34½. The 5 per cent. preference improved to 94½, after being reduced to 94, while the 4 per

cent. debentures at 106 are also fractionally better than at the beginning of the week. L.M.S.R. ordinary at 13½, the 4 per cent. preference at 50½, the 1923 preference at 27½, and the 4 per cent. guaranteed at 86½ also now show better prices than those ruling on Monday and Tuesday. Similar remarks apply to Southern deferred at 12½, and to the preferred stock at 51½; the 5 per cent. preference was 94. L.N.E.R. first and second preference, at 25½ and 10 respectively, remained neglected, as did the second guaranteed at 59, but the first guaranteed stock had a firmer appearance at 77½. London Transport "C" was relatively firm at around 73½.

Argentine railway debentures and prior charges continued out of favour, but B.A. Gt. Southern, Central Argentine, and B.A. Western ordinary stocks became a rather better market. Other foreign railway securities attracted very little attention. Among American railways, Union Pacific, New York Central and Atchison were more prominent this week.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

Railways	Miles open 1937-38	Week Ending	Traffic for Week		No. of Weeks	Aggregate Traffic to Date			Shares or Stock	Prices							
			Total this year	Inc. or Dec. compared with 1937		Totals		Increase or Decrease		Highest 1937	Lowest 1937	Avg. 24, 1938	Yield (See Note)				
						This Year	Last Year										
South & Central America	Antofagasta (Chili) & Bolivia	834	21.8.38	£ 11,700	—	£ 4,320	34	£ 514,600	£ 549,210	—	£ 34,610	Ord. Stk.	29	101½	11	Nil	
	Argentine North Eastern ..	753	20.8.38	11,011	—	714	8	84,913	78,307	+	6,606	A. Deb.	18½	6	80	Nil	
	Argentine Transandine ..	—	—	—	—	—	—	—	—	—	—	6 p.c. Deb.	93½	60	5	Nil	
	Bolivar ..	174	July, 1938	3,650	—	2,150	30	26,250	40,800	—	14,550	Bonds.	17	9	6	85½	
	Brazil ..	—	—	—	—	—	—	—	—	—	—	Ord. Stk.	171½	5½	4½	Nil	
	Buenos Ayres & Pacific ..	2,806	20.8.38	72,767	—	7,940	8	538,153	608,499	—	70,346	Mt. Deb.	411½	18	14	Nil	
	Buenos Ayres Central ..	190	6.8.38	\$116,000	—	\$42,200	6	\$642,800	\$851,300	—	\$208,500	Ord. Stk.	335½	13½	12	Nil	
	Buenos Ayres Gt. Southern ..	5,084	21.8.38	124,442	—	6,700	8	914,951	900,062	+	14,889	"	313½	11¼	8	Nil	
	Buenos Ayres Western ..	1,930	20.8.38	35,298	—	18,052	8	277,356	346,961	—	69,605	"	344	10¾	8½	Nil	
	Central Argentine ..	3,700	20.8.38	192,993	—	29,122	8	761,440	1,065,445	—	304,005	"	20½	4½	4½	Nil	
	Do. ..	—	—	—	—	—	—	—	—	—	—	Ord. Stk.	67½	2	2	Nil	
	Cent. Uruguay of M. Video	972	6.8.38	16,743	—	1,516	6	89,684	85,208	+	4,476	Ord. Inc.	61½	1½	3½	Nil	
	Cordoba Central ..	1,218	—	—	—	—	—	—	—	—	—	Stk.	38	27	25½	7½	
	Costa Rica ..	188	June, 1938	31,369	—	318	52	314,399	249,333	+	65,066	1 Mt. Db.	107	106	105	51½	
	Dorada ..	70	July, 1938	18,900	—	3,800	31	114,600	105,500	+	9,100	Ord. Stk.	197½	6	5½	Nil	
	Entre Rios ..	810	20.8.38	15,775	—	285	8	116,320	107,716	+	8,604	Ord. Sh.	54	1½	1½	Nil	
	Great Western of Brazil ..	1,092	20.8.38	5,100	—	1,100	34	216,600	244,000	—	27,400	Ord. Sh.	54	1½	1½	Nil	
	International of Cl. Amer. ..	794	June, 1938	\$425,611	—	\$9,637	26	\$3,010,489	\$3,126,388	—	\$115,899	—	—	—	—	—	—
	Interoceanic of Mexico ..	—	—	—	—	—	—	—	—	—	—	1st Pref.	2/-	1/-	—	Nil	
	La Guaira & Caracas ..	221	July, 1938	5,345	—	930	31	35,580	38,120	—	2,540	Stk.	81½	6	8½	Nil	
	Leopoldina ..	1,918	20.8.38	25,889	—	4,057	34	642,524	764,990	—	122,466	Ord. Stk.	914	3	2	Nil	
Mexican ..	483	14.8.38	\$227,300	—	\$61,700	7	\$1,707,600	\$1,879,200	—	\$171,600	"	112	14	3½	Nil		
Midland of Uruguay ..	319	July, 1938	8,682	—	1,041	4	8,682	7,641	+	1,041	"	178	12	12	Nil		
Nitrate ..	386	15.8.38	5,852	—	230	33	96,357	100,988	—	4,631	Ord. Sh.	316	2	2	5½		
Paraguay Central ..	274	20.8.38	\$2,832,000	—	\$808,000	8	\$24,370,000	\$26,892,000	—	\$2,522,000	Pr. Li. Stk.	84	79½	57½	5½		
Peruvian Corporation ..	1,059	July, 1938	74,055	—	7,079	5	74,055	81,134	—	7,079	Prf.	1454	4½	3	Nil		
Salvador ..	100	13.8.38	\$17,400	—	\$3,950	7	\$79,393	\$83,502	—	\$4,109	Pr. Li. Db.	2312	212	22½	Nil		
San Paulo ..	153½	14.8.38	31,832	—	4,176	33	1,022,868	1,068,778	—	45,910	Ord. Stk.	9812	56	34½	119½		
Taltal ..	160	July, 1938	3,510	—	570	4	3,510	2,940	+	570	Ord. Sh.	1716	116	112	138½		
United of Havana ..	1,353	20.8.38	16,913	—	3,464	8	119,327	143,118	—	23,791	Ord. Stk.	58	339	1½	Nil		
Uruguay Northern ..	73	July, 1938	874	—	86	4	874	788	+	86	Deb. Stk.	10	2	2	Nil		
Canada	Canadian National ..	23,781	14.8.38	652,723	—	61,491	33	20,682,980	23,750,479	—	3,067,499	—	—	—	—	—	
	Canadian Northern ..	—	—	—	—	—	—	—	—	—	4 p.c.	77	62½	63½	65½		
	Grand Trunk ..	—	—	—	—	—	—	—	—	—	4 p.c. Gar.	10178	94½	101½	315½		
Canadian Pacific ..	17,186	14.8.38	491,600	—	24,200	33	15,478,200	16,798,600	—	1,320,400	Ord. Stk.	18	7¼	6½	Nil		
India	Assam Bengal ..	1,329	10.8.38	39,322	—	3,256	19	492,212	466,422	+	25,790	Ord. Stk.	86	73½	79	31½	
	Barsi Light ..	202	10.8.38	2,295	—	38	19	57,352	52,155	+	5,197	Ord. Sh.	6612	46	60	85½	
	Bengal & North Western ..	2,116	10.8.38	61,327	—	9,399	19	1,065,640	1,132,729	—	67,089	Ord. Stk.	317	301	287½	6¼	
	Bengal Doars & Extension ..	161	10.8.38	4,078	—	299	19	47,908	47,749	—	159	"	100	84	85½	7	
	Bengal-Nagpur ..	3,268	10.8.38	148,875	—	3,433	19	2,515,338	2,561,297	—	47,959	"	101	89	92	4½	
	Bombay, Baroda & Cl. India	3,085	10.8.38	201,000	—	12,525	19	3,207,450	3,275,925	—	68,475	"	113	110½	110½	57½	
	Madras & Southern Mahratta	2,967	31.7.38	148,725	—	8,913	18	1,956,798	1,866,186	+	90,612	"	110	105	107	87½	
	Rohilkund & Kumaon ..	546	10.8.38	11,446	—	621	18	214,243	217,148	—	2,905	"	314	302	296½	61½	
South Indian ..	2,531½	31.7.38	116,667	—	2,667	18	1,118,373	1,399,872	—	18,501	"	103½	99½	101½	41½		
Various	Beira-Umtali ..	204	June, 1938	89,780	—	1,725	40	783,661	676,896	+	106,165	—	—	—	—	—	
	Egyptian Delta ..	620	31.7.38	6,075	—	617	18	66,549	70,932	—	4,383	Prf. Sh.	31/-	54	54	Nil	
	Kenya & Uganda ..	1,625	July, 1938	179,918	—	19,221	31	1,678,207	1,723,478	—	45,271	B. Deb	4818	43½	43	81½	
	Manila ..	—	—	—	—	—	—	—	—	—	Inc. Deb.	98	93½	93½	4¼		
	Midland of W. Australia ..	277	June, 1938	15,962	—	4,994	52	180,120	155,207	+	24,913	—	—	—	—	—	
	Nigerian ..	1,900	9.7.38	27,245	—	1,240	15	443,853	790,600	—	346,747	—	—	—	—	—	
	Rhodesia ..	2,442	June, 1938	425,403	—	5,522	40	3,743,259	3,352,058	+	391,201	—	—	—	—	—	
	South Africa ..	13,263	13.8.38	624,225	—	40,352	20	11,858,821	12,128,430	—	269,609	—	—	—	—	—	
Victoria ..	4,774	May, 1938	849,379	—	26,441	48	9,015,865	9,342,068	—	326,203	—	—	—	—	—		

NOTE.—Yields are based on the approximate current prices and are within a fraction of 1½

† Receipts are calculated @ 1s. 6d. to the rupee

§ ex dividend.

The variation in Sterling value of the Argentine paper peso has lately been so great that the method of converting the Sterling weekly receipts at the par rate of exchange has proved misleading, the amount being overestimated. The statements are based on the current rates of exchange and not on the par value